The returns to self-employment in South Africa: An analysis of household survey data

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202514203

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2 June 2008

Supervisor's report

Mr Francois Steenkamp: Master's dissertation in Economics

I have read the near final draft of the dissertation written by Mr Francois Steenkamp and declare that it is presented in a form ready for examination.

I started supervising Mr Steenkamp's dissertation early in the second semester of 2007. At the outset, we met regularly to discuss the nature of the study and to work through data and estimation issues. In December 2007, Mr Steenkamp started writing up his dissertation. I have now read two drafts of each chapter of the dissertation. I provided extensive comments for revision and clarification. Mr Steenkamp was always responsive to these suggestions and recommendations.

Without making any suggestion as to the mark it should receive, I believe that this empirical study is a fair reflection of the student's ability.

Yours sincerely,

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I declare that the dissertation written by Mr Francois Steenkamp is written at an acceptable standard of English.

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DECLARATION

I Francois Karl Steenkamp declare that

(i) The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.

(ii) This dissertation/thesis has not been submitted for any degree or examination at any other university.

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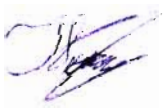
Signature: 

Abstract

This study investigates self-employment in South Africa focusing particularly on earnings differences among the self-employed. A large earnings gap is present among Blacks and Whites in self-employment and the study examines how much of this earnings gap is attributable to differences in observed characteristics of the self-employed, and how much derives from differences in the returns to these observed characteristics. I estimate earnings equations using data from the September 2004 Labour Force Survey and find that variables representing individual, household and employment characteristics of the self-employed are determining part of their earnings. Using the Oaxaca-Blinder decomposition technique, I however, establish that only 55 percent of the earnings differential between Blacks and Whites in self-employment is attributable to differences in observed characteristics. The remainder of the earnings differential may reflect the effects of omitted (unobserved) characteristics, or it may reflect differences in the returns to observed characteristics. Different returns to endowments may be the results of discrimination among the self-employed, including consumer discrimination and discrimination in access to credit or product markets.

Acknowledgements

With the completion of this dissertation I am finally at the end of my journey as a full-time student (although the learning certainly does not stop here). The journey has been long but incredibly rewarding and there are many to thank for their input in my studies over the past six and a half years.

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My love and gratitude must go to my beautiful fiancée Cate (wife to be on the 21st of June 2008) who has been there all the way. I must thank her for her patience, her phone calls to make sure that I am up and working in the morning, and her amazing love and support. I love her with all my heart and I am blessed to have her as the lady of my life.

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Abbreviations

CSSR	Centre for Social Science Research
DPRU	Development Policy Research Unit
ERSA	Economic Research Southern Africa
GJMA	Greater Johannesburg Metropolitan Area
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IMOP	Institute for Economic Policy Studies
IZA	Institute for the Study of Labour
KMP	Khayelitsha/Mitchell's Plain Survey
LFS	Labour Force Survey
NBER	National Bureau of Economic Research
NGO	Non Governmental Organisation
OHS	October Household Survey
OLS	Ordinary Least Squares
SMME	Small, Medium and Micro Enterprise
Stats SA	Statistics South Africa
TIPS	Trade and Industrial Policy Strategies
UCT	University of Cape Town
USA	United States of America

Chapter One: Introduction

This dissertation investigates self-employment in South Africa. Its primary objective is to probe the determinants of earnings in self-employment and to interrogate the large earnings gap in self-employment among Blacks and Whites in South Africa. Furthermore, this dissertation examines how much of this gap is attributable to differences in the characteristics of the self-employed, and how much derives from the differences in the returns to these characteristics.

1.1 Context: The South African labour market

The focus of the study is the South African labour market and more specifically self-employment in the South African labour market. Research into the South African labour market is important in that the performance of the labour market is central to the success of government strategies aimed at reducing unemployment, inequality and poverty as well as raising average incomes across the South African population. The success of these strategies in reducing unemployment, inequality and poverty is vital in calming possible threats to social and political stability that result from such problems. Thus research into the labour market is important because it can assist policy makers in their strategies and decision making processes.

Studies focusing on aspects of the post-apartheid South African labour market reveal a number of common findings. The first common finding is that there has been a rapid rise in labour force participation (i.e. supply of labour) and hence expansion of the labour force since the mid-1990s. Over the period 1995 to 2003, the narrow labour force[1] and the broad labour[2] force have

[1] The narrow labour force includes employed individuals (individuals involved in an economic activity in the last seven days prior to the interview) and the searching unemployed. The searching unemployed are those who are willing to accept employment and have actively searched for employment in the four weeks prior to the interview (Kingdon & Knight, 2004:393).

increased by 4.6 million and 6.3 million, respectively (Casale, Muller & Posel, 2004; Oosthuizen, 2006). This translates into growth in excess of four percent (in both the broad and narrow definition) per annum from 1995 to 2003. The increase in labour force participation has occurred across both race and gender with the increase being greatest among Blacks, females and in particular Black females.

Worryingly, the economy has been unable to generate enough employment growth (i.e. demand for labour) to absorb all the current labour force or all the increment to the labour force over the period. Total employment has grown at an average of 2.3 percent per annum from 1995 to 2003 and this translates into roughly "two million new jobs" (Casale, Muller & Posel, 2004; Oosthuizen, 2006; Kingdon & Knight, 2007). Most of these jobs were generated in wage employment (1.3 million growing at 1.8 percent per annum) as opposed to self-employment (0.7 million growing at 5.1 percent per annum). However, less than half of the "two million new jobs" reflect employment growth in the formal sector and thus well over half are accounted for by increases in self-employment in the informal sector (750 000), domestic work (300 000) and subsistence farming (250 000) (Casale, Muller & Posel, 2004). Thus employment growth is not synonymous with employment growth in "good" jobs. Furthermore, Casale, Muller & Posel (2004) argue that after accounting for changes in data capture and the broadening of what household surveys consider as employment, the increase in total employment for the period 1995 to 2003 is more likely to be around 1.4 million.

With the large disparity between the supply of labour and the demand for labour, the result is growing unemployment from already high levels. From 1995 to 2003, both the narrow unemployment rate and the broad unemployment rate grew from 17 to 28 percent (8 percent growth per annum) and 29 to 42 percent (5.6 percent growth per annum), respectively (Kingdon

[2] The broad labour force includes employed individuals, the searching unemployed and the non-searching unemployed. The non-searching unemployed are those willing to accept employment but have not actively searched for employment in the reference period (four weeks prior to the interview) (Kingdon & Knight, 2004:393).

& Knight, 2007). Even using a strict (narrow) measure of unemployment, the unemployment rate in South Africa is exceedingly high and is thus a major problem in South Africa.

The growth in self-employment therefore has been low relative to persistently high levels of unemployment in South Africa. This has lead to a growing body of literature in South Africa, which investigates why more people are not entering self-employment, and in particular, what barriers prevent labour force participants from entering self-employment (Chandra & Nganou, 2001; Cichello, 2005; Cichello, Almeleh, Mncube & Oosthuizen, 2006; Cichello, Mncube, Oosthuizen & Poswell, 2007).

In literature from the United States of America (USA), researchers argue that self-employment is seen as a route out of unemployment and a means of independence from social welfare rolls (Meyer, 1990; Das, 2003). Thus the promotion of self-employment is a way to absorb excess labour, generate employment and reduce poverty among segments of the population. Boyd (1991) argues that self-employment provides a safety valve for those unable to obtain jobs elsewhere due to unemployment and discrimination.

More importantly, self-employment is seen as a source of economic advancement for certain ethnic groups and minorities (Boyd, 1991; Fairlie & Meyer, 1996). For instance, in the USA self-employment is a major source of employment among East Asian minorities (e.g. Chinese; Japanese; Vietnamese) and Pacific Islands groups (e.g. Filipinos). Furthermore, the advancement and promotion of self-employment and small business is seen as a source of economic and employment growth in the economy. Meyer (1990) suggests that small business is responsible for the creation of a disproportionate share of new jobs and innovations.

In light of persistently high levels of unemployment in South Africa, Cichello (2005) calls for further research into self-employment. This research could help public policy makers, informal

worker organisations and Non-Governmental Organisations (NGOs) design programmes and policies to assist those already in self-employment or those willing and able to enter self-employment activities. Research can help identify profitable sectors and activities for self-employment, possible costs associated with certain types of activities and possible barriers to entry into self-employment activities. Policies and programmes can direct individuals to profitable activities and assist them in starting-up, help remove certain barriers and obstacles, facilitate and educate business practices, and help generate higher profit levels. Essentially, the research should aid policy makers and other organisations in designing programmes and policies that encourage growth in self-employment.

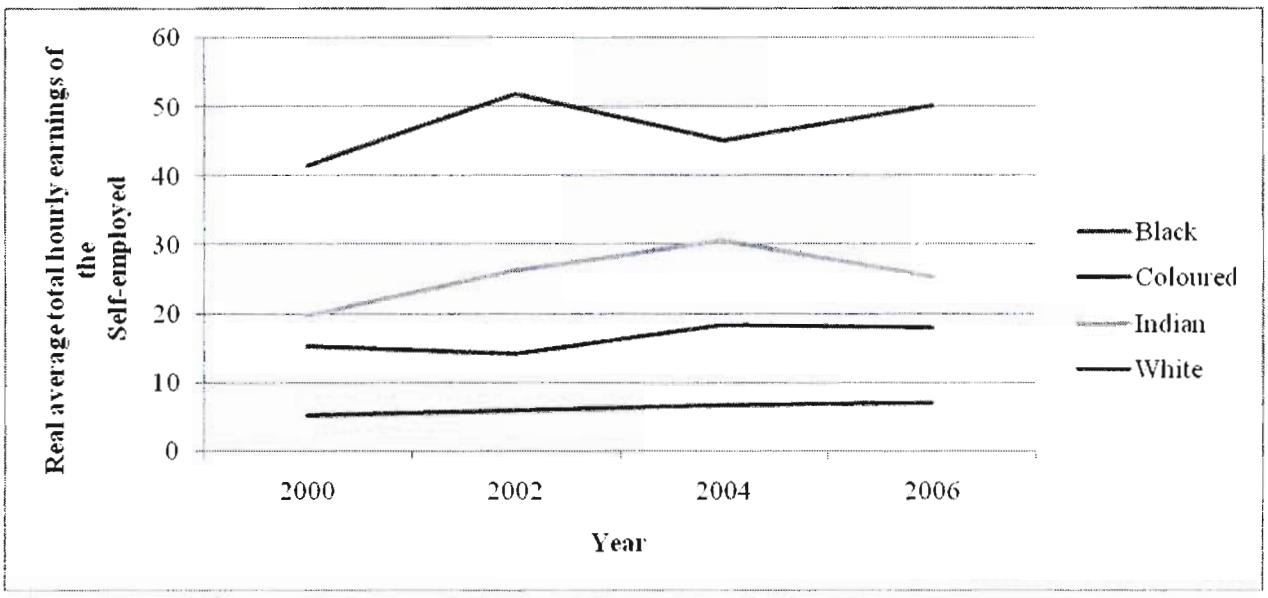
This dissertation does not investigate explicitly why self-employment in South Africa remains so low in the face of very high rates of unemployment. The focus, rather, is on the returns to self-employment and a consideration of why average returns to self-employment among Blacks remain so much lower than among Whites. However, the presence of low returns to self-employment could be a factor helping to explain why self-employment is not growing more rapidly, particularly if self-employment is riskier or generates less secure income than wage employment. This suggestion warrants further investigation in a study of "reservation earnings" in South Africa, but is beyond the scope of this dissertation.

1.2 The research problem

The main research question of this dissertation is what accounts for earnings differences among the self-employed in South Africa? Figure 1 illustrates earnings differences by race among the self-employed. Self-employed Whites, on average, earn between R42 and R50 per hour (or between R8 000 and R10 000 per month) compared to self-employed Blacks who are earning, on average just over R5 per hour (or R1 000 per month). Self-employed Indians and Coloureds fall between the earnings levels of Blacks and Whites, with self-employed Indians earning more than self-employed Coloureds.

My study probes the determinants of earnings in self-employment and interrogates the large earnings gap in self-employment among Blacks and Whites in South Africa. In particular, I investigate how much of the earnings gap is attributable to differences in the characteristics of the self-employed, and how much derives from differences in the returns to these characteristics.

Figure 1: Real average total hourly earnings of the self-employed by race, 2000 - 2006



Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2
Notes: 1. Data are weighted (using the new weights released by Statistics South Africa in 2006). 2. Estimates are for employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 3. Earnings estimates include imputed values for zero and missing reported earnings. 4. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa.

Self-employment in South Africa is not synonymous with entrepreneurship. Instead self-employment in South Africa includes both entrepreneurial activities (e.g. individuals who own their own business that possibly employs a number of workers) as well as survivalist activities in the informal economy (e.g. subsistence farmers). Thus when I speak of self-employment I speak of a whole array of possible self-employment activities.

This dissertation makes use of the most recent household survey datasets that contain comprehensive information on the South African labour market. I use the nationally representative Labour Force Surveys (September rounds) from the years 2000, 2002, 2004 and 2006 to describe trends in self-employment. An advantage of the study is that I can use a consistent survey instrument to explore trends in self-employment for the period 2000 to 2006.

I use these data to explore three specific aims. Firstly, I investigate changes in the extent and composition of the self-employed and their real earnings in South Africa. I use descriptive analysis to explore the trends in self-employment for the period 2000 to 2006. This aim seeks to establish whether self-employment is growing in the South African economy, whether it is growing in the formal or informal sectors and in what industries self-employment is growing. I also probe which race groups are more likely to be self-employed, whether this is different across sectors of the economy and whether this is changing over time. In addition I investigate the earnings of the self-employed across sector and across race.

The second specific aim examines differences in the average characteristics of the self-employed, the distribution of the self-employed across occupation types and industry, as well as the distribution of earnings at one point in time. I use descriptive analysis of cross-sectional household survey data for the year 2004. I use the LFS 2004:2, because unlike the later LFSs, it contains information on access to credit and I expect this to be a significant determinant of earnings of the self-employed.

The third specific aim analyses whether the earnings differential among self-employed Blacks and self-employed Whites is a result of differences in observable characteristics such as different average levels of education and experience, or a result of differences in returns to these observable characteristics. Differences in returns to observable characteristics suggest the presence of discrimination. Discrimination among the self-employed cannot be in the form of employer discrimination since the study deals with the self-employed. Despite controlling for

occupational status broadly in the regressions, it is still possible that discrimination affects access to jobs within occupational categories. Discrimination may also be in the form of consumer discrimination, where customers may be unwilling to hire the services or purchase goods from someone of colour unless they can offset the cost of doing so by paying less (Borjas & Bronars, 1989; Meyer, 1990; Boyd, 1991). I use econometric analysis to investigate earnings differences among the self-employed in South Africa for the year 2004.

1.3 Overview

Chapter Two reviews relevant literature on the South African labour market, self-employment, returns to employment, the decomposition of earnings differentials and barriers to self-employment. Chapter Three motivates and explains the data and methodology used in the dissertation. Chapter Four explores changes in the extent and composition of the self-employed and their earnings over time. This chapter also examines the characteristics of the self-employed, the distribution of the self-employed across occupation type and industry, and their earnings. Chapter Five analyses the econometric results from the earnings regressions and the Oaxaca-Blinder decomposition. Chapter Six summarises the key findings of the study.

Chapter Two: Literature review

This dissertation investigates self-employment in South Africa. Its primary objective is to probe the determinants of earnings in self-employment and examine the earnings differential among Blacks and Whites in self-employment. This chapter reviews economics literature on self-employment in South Africa as well as literature on decomposing earnings differentials between groups of the employed.

I have demarcated the literature according to the structure of the dissertation and the overall objective. Firstly, I define self-employment and review literature on self-employment in South Africa. This section outlines what work has been done on self-employment, the focus of these studies, what has not been done, and where my research fits in the literature. I then review literature on the estimation of earnings equations for the self-employed, focusing particularly on the determinants of earnings. The third section of this chapter focuses on literature on decomposition techniques that enable a researcher to decompose the earnings differential between groups into 'explained' and 'unexplained' components. Although productivity-related differences (i.e. 'explained' component) typically explain a large part of the variation in earnings among the self-employed, self-employed individuals with similar endowments may also receive different returns to these characteristics (i.e. 'unexplained' component). Since the focus of this dissertation is self-employment, the first step is to define self-employment.

2.1 Self-employment in South Africa

2.1.1 Self-employment

Le (1999:404) defines a self-employed individual as someone "who operates his own business or engages independently in a profession or trade".

Much of the literature (especially in developed countries) sees self-employment and entrepreneurship as synonymous. The everyday understanding of someone who is self-employed is your private practice lawyer or doctor, the corner-side shop owner, the electrician or plumber, or the businessman who owns his own company. They are risk-taking entrepreneurs, who own businesses or enterprises, and who are generally successful.

However, there is another side to self-employment which is not as "optimistic". Self-employment may also be a survival strategy for the poor who are trying to eke out a livelihood in the informal sector (Das, 2003:2-3). The other side of self-employment sees self-employment as survivalist in nature. It sees self-employed individuals working as subsistence farmers, street-vendors or hawkers who are just trying to earn enough to survive.

Therefore when looking at self-employment in South Africa in this dissertation I refer to the self-employed in the broadest sense. When speaking of self-employment, I do not merely speak of an entrepreneur who owns his own business and employs others but rather a continuum of possible economic activity undertaken by self-employed individuals. The self-employed range from owners of big companies, to private practice professionals, to owners of micro enterprises, to survivalist subsistence farmers.

Now that self-employment has been defined, the next step is to look at how the literature describes the trends in self-employment in South Africa over the period 1995-2003. Chapter Four updates this picture by focusing on the trends in self-employment from 2000 to 2006.

2.1.2 Trends in self-employment in South Africa, 1995-2003

There is a great deal of literature focussing on the South African labour market (see for example, Allanson, Atkins & Hinks, 2000; Bhorat, 2000; Mwabu & Schultz, 2000; Erichsen & Wakeford, 2001; Bhorat & Leibbrandt, 2002; Rospabé, 2002; Bhorat & Leibbrandt, 2003; Devey, Skinner & Valodia, 2003; Casale, Muller & Posel, 2004; Casale, 2004; Muller & Posel, 2004; Cichello, Fields & Leibbrandt, 2005; Posel & Casale, 2005; Oosthuizen, 2006; Casale & Posel, 2007; Kingdon & Knight, 2007; Posel & Muller, 2007; Heintz & Posel, 2008). Although these authors do not focus expressly on the self-employed, some detail trends in self-employment in their analysis of employment trends more generally. In this section I review these trends in self-employment and the earnings of the self-employed in South Africa for the period 1995 to 2003.

Casale, Muller & Posel (2004:983) show that self-employment grew by approximately 991 000 jobs in the period 1995 to 2003 at a growth rate of 15.7 percent per annum. However, this growth in self-employment is from a relatively small base when compared to wage employment. It is however important to note that self-employment can be broken up into different components. Casale, Muller & Posel (2004:983) disaggregate self-employment into three components: formal sector self-employment, informal sector self-employment, and subsistence agriculture[3]. From 1995 to 2003 formal sector self-employment grew by approximately 230 000 jobs (9 percent growth per annum from a small base). Informal sector self-employment and subsistence agriculture grew by approximately 761 000 jobs and 164 000 jobs, respectively (19 percent and 13 percent growth per annum, respectively from small bases). However, Heintz & Posel (2008:33) describe trends in formal and informal self-employment over the period 2000 to 2004 and suggest that self-employment appears to have remained at approximately the same level over this short period: thus implying that most of the growth in self-employment occurred prior to 2000 and that part of the growth may be a result of increased efficiency in the capture of employment activities. It is also apparent that informal self-employment made up a larger

[3] Casale, Muller and Posel (2004) define subsistence farmers as those who are self-employed in agriculture and who are not registered.

percentage of total self-employment over time, growing from 63 percent of total self-employment in 1995 to 72 percent of total self-employment in 2000. Thus there has been growth in self-employment, and particularly in the informal sector, since the coming of democracy in South Africa. However, in relation to the size of unemployment, the growth in self-employment has been small.

Furthermore, it is important to note that a significant portion of this growth in self-employment may be due to increased efficiency in data capture and definitional changes (Devey, Skinner & Valodia, 2003:12; Casale, Muller & Posel, 2004:985). For instance, subsistence farming was only captured from the 1999 October Household Survey (OHS) onwards. Thus a large portion of those who are considered subsistence farmers after 1999 would not have been captured as employed prior to 1999 (provided that they were subsistence farmers throughout the time period). In addition with the switch over from the OHS to the Labour Force Survey (LFS) in 2000 there was a considerable increase in those captured as subsistence farmers (a jump from 136 300 to 748 300). Much of this increase may be due to definitional changes and increased data collection efficiency that accompanied the switch over.[4]

A similar pattern is evident in informal self-employment. It is quite possible that there are individuals who are classified as employed in 2000 but who were not classified as employed using the OHS survey instrument (Devey, Skinner & Valodia, 2003:12-20 Casale, Muller & Posel, 2004:983-986). The LFS was designed to more efficiently capture labour market information and this was especially the case in capturing marginal forms of employment. Thus there may have been self-employed individuals who considered their businesses as marginal and survivalist and not as "real" employment, who were not captured by earlier surveys prior to the LFS. The data presented by Casale, Muller & Posel (2004:983) show that informal self-employment grew by 229 900 jobs at the switchover from the OHS in October 1999 to the LFS

[4] Subsistence agriculture is also a highly volatile source of employment and this is reflected by relatively large rises and falls in subsistence farming figures on a year to year basis. Devey, Skinner & Valodia (2003:5), Casale, Muller & Posel, (2004:986) and Muller & Posel (2004:6-8) refer to the variability in subsistence farming figures and suggest that subsistence agriculture should be reported separately from the informal sector data.

in September 2000, some portion of which is likely to reflect more efficient data capture and changing definitions of employment. Thus the growth in self-employment is likely to be even less impressive.

Casale (2004:13-21) disaggregates trends in self-employment by race for the period 1995 to 2001. She shows that over this period informal sector Black self-employment was the fastest growing type of employment for Blacks and it is also the employment type for which Black earnings decreased the most. Formal sector White self-employment was the second largest employment type for White workers and the fastest growing source of employment for White workers.

Casale (2004:19-20) finds that Black self-employed workers in the informal sector are mainly found in semi-skilled and unskilled occupational categories. Over the period, occupations such as service, shop and market sales workers and skilled agriculture and fishery workers experienced considerable growth (195 000 jobs and 99 000 jobs respectively), although from a low base. Occupations such as craft and related trade workers (160 000 jobs) and elementary occupations (330 000 jobs) also grew considerably from relatively higher bases over the period. Thus the data suggest that much of the growth in Black self-employment in the informal sector occurred in semi-skilled and unskilled occupational categories.

In contrast, White self-employment in the formal sector is found predominantly in high-skilled occupational categories (Casale, 2004:20-21). It is these same occupational categories that have also shown the most growth for White self-employed workers in the formal sector over the period. White self-employed workers in the formal sector experienced growth in occupational categories such as legislators, senior officials and managers (59 000 jobs), professionals (16 000 jobs), and technical and associate professionals (15 000 jobs). Occupations such as skilled agriculture and fishery, and craft and related trade have experienced marginal declines in

employment over the period (of 1 000 and 8 000 jobs respectively), but these occupations make up a relatively small share of White self-employment.

How has the increase in self-employment impacted on the earnings of the self-employed? Data from Kingdon & Knight (2007:820) and Casale, Muller and Posel (2004:992) show that real monthly earnings of the self-employed have fallen by 62 percent from R6 866 per month in 1995 to R2 610 per month in 2003. The informal self-employed have been hit hardest with their earnings falling by 71 percent from R3 352 per month in 1995 to R968 per month in 2003. As one would expect the formal self-employed earn significantly more than the informal self-employed. However, the formal self-employed have also experienced losses in earnings of 46 percent over the period from R14 081 in 1995 to R7 599 in 2003. Subsistence farmers have incurred growth in their earnings of 21 percent for the period 2000 to 2003. However, the increase in their earnings has been from a relatively low base (R84 per month in 2000 to R102 per month in 2003).

Casale (2004:20-21) shows that the earnings of the Black informal self-employed have fallen across all occupations for the period 1995 to 2001. This is not surprising since with an increase in labour supply (i.e. growth in informal self-employment) and hence increased competition among the informal self-employed one would predict a fall in earnings. Each occupation category has shown at least a 50 percent drop in earnings for Black informal self-employed. This decline in Black earnings has occurred from a significantly lower base when compared to White formal self-employed workers. The White formal self-employed workers earn significantly more than Black informal self-employed workers, but they too have experienced losses in earnings across occupational categories for the period.

2.1.3 Barriers to entry into self-employment

There is a growing body of literature in South Africa that focuses on self-employment in light of the persistently high levels of unemployment in South Africa (see: Chandra & Nganou, 2001; Cichello, 2005; Cichello, Almeleh, Mncube & Oosthuizen, 2006; Cichello, Mncube, Oosthuizen & Poswell, 2007). As mentioned earlier in Chapter One, the supply of labour is increasing, but the demand for labour is not increasing at the same rate and thus the result is increasing unemployment. The puzzle which this literature explores is why relatively low levels of self-employment, particularly in the informal sector, co-exist with persistently high levels of unemployment in South Africa. If the formal sector is a free-entry sector (as a dual labour market model might predict – Fields, 2005), then earnings in informal employment should adjust downwards until markets clear (Cichello et al, 2006:2-3; Heintz & Posel, 2008:28-30). The literature therefore explores why people are not entering self-employment and what are the barriers to entry into self-employment.

The literature that I reviewed explores barriers to entry, or obstacles to employment creation, in both the informal and formal sectors of the South African economy. A study by Chandra & Nganou (2001) investigates the obstacles to formal employment creation in South Africa. Their research draws on findings from five 1999 Greater Johannesburg Metropolitan Area (GJMA) World Bank firm surveys. The authors state that the sample from this area is strongly representative of most of South Africa's firms across production and service industries. The study looks firstly at why growth and job creation have stalled in the manufacturing sector and why growth and job creation have been constrained in the services sector. The research identifies crime, exchange rate depreciation, corruption, high interest rates and a shortage of skilled labour to be the major barriers to employment growth. The second part of their study examines why job creation has stalled in the Small, Medium and Micro Enterprise (SMME) sector.

Through the SMME programme the government aimed to assist would-be Black firm owners (i.e. entrepreneurs) to start up small firms and thus be a source of employment creation and investment growth. The SMME programme also sought to reduce household poverty and income inequality. In reality the SMME programme has seen a slow emergence of Black SMMEs and has not produced the desired results in terms of employment growth (Chandra & Nganou, 2001:21-22). The GJMA World Bank surveys surveyed 800 SMMEs across manufacturing and service sectors and examined what factors could be responsible for the stagnant growth of SMMEs.

The main factor responsible for the slow emergence of Black SMMEs is most of those wanting to start up SMMEs do not have the initial stock of entrepreneurial capital or work experience (Chandra & Nganou, 2001:23-26). Due to historical reasons Blacks were denied the opportunity to own their own businesses and thus few acquired the stock of entrepreneurial capital and work experience needed to enter self-employment. The surveys also found that there was a shortage of business skills and the necessary programmes needed to address such shortages. Access to credit rather than the price of credit (interest rate) proved to be a hindrance to Black SMMEs (among those who did not use private capital)[5]. Small-scale entrepreneurs also reported that there was insufficient government support for SMME promotion in terms of improving competitiveness, marketability, and visibility of SMMEs.

In their study of informal employment in South Africa, Heintz & Posel (2008) draw attention to entry barriers not only to the formal sector, but also to the informal sector. They therefore suggest a more complex segmentation of the South African labour market, with the informal labour market not being the "residual free entry sponge" often implied in dualistic presentation of the labour market (Fields, 2005).

[5] However, there is an indirect effect of high interest rates lowering demand and hence adding to slower firm growth.

Recent work done by Cichello (2005), Cichello, Almeleh, Mncube & Oosthuizen (2006) and Cichello, Mncube, Oosthuizen & Poswell (2007) highlight some of these barriers to entry and mobility. These studies focus on data from different waves of the Khayelitsha/Mitchell's Plain (KMP) Survey. The KMP survey contains key labour market data on individuals and households living in the Mitchells Plain managerial district. The sample is only representative of the residents living in the Mitchells Plain managerial district and not of the Cape Town Metropolitan area or the nation as a whole. The data from the KMP surveys can be used to analyse various aspects of that local labour market, such as unemployment, employment, labour force participation and the informal economy. The studies mentioned above centre on barriers to entry into self-employment.

Using data from the 2000 KMP survey, Cichello (2005:16-29) finds that the major hindrance to self-employment, indentified by respondents, are capital constraints (i.e. no capital to start a business and unable to borrow money from a financial institution). Other obstacles, but to a lesser extent, are concerns over expected profit, lack of skills, concerns over future access to formal jobs and other hidden costs such as crime. With the use of a later wave of the KMP survey (2005) Cichello, Almeleh, Mncube & Oosthuizen (2006:14-20) report that the major barrier to entry into self-employment, is identified as crime. Other hindrances include risk of business failure from one unlucky month, lack of access to start-up capital, high transport costs and jealousy of success within the community.

2.2 Earnings equations for the self-employed

In section 2.1.2 there is evidence that there are significant earnings differences among the self-employed in South Africa for the period 1995 to 2003. Chapter Four adds to this picture by investigating earnings among the self-employed for the period 2000 to 2006 and it reveals that earnings differences are still present. The next step is to probe the determinants of earnings of the self-employed. I now review literature relevant to this task (Meyer, 1990:34; Boyd,

1991:458-459; Fairlie & Meyer, 1994:33-36; Fairlie & Meyer, 1996:788-789; Portes & Zhou, 1996:223; Le, 1999:384; Bhorat, 2000:6; Clain, 2000:508; Hamilton, 2000:616-617; Hundley, 2000:105; Mwabu & Schultz, 2000:309-313; Bhorat & Leibbrandt, 2001:124-127; Deininger, Jin & Nagarajan, 2006:20; Muller & Posel, 2007:11; Casale & Posel, 2008:13; Heintz & Posel, 2008:38).

To explore the determinants of earnings in a multivariate context, econometric studies estimate earnings equations. The general structure of earnings equations is that of the standard Mincerian earnings equation (Mincer, 1962:53; Mincer, 1970:9; Mincer, 1974:8; Fairlie & Meyer, 1994:33; Le, 1999:384; Bhorat, 2000:6; Mwabu & Schultz, 2000:309-313; Muller & Posel, 2007:11; Casale & Posel, 2008:13; Heintz & Posel, 2008:38). In most studies the earnings equation is estimated using the Ordinary Least Squares (OLS) estimation method. In the standard Mincerian earnings equation the common explanatory variables are education and work experience. However, in many of the studies other explanatory variables are included in order to better explain earnings. Earnings equations are in general quite similar except for adjustments in the choice of functional form, choice and measurement of the dependant variable, and the choice of explanatory variables. Sections 2.2.1 and 2.2.2 deal with these adjustments.

2.2.1 Functional form and dependent variables used in earnings equations

When estimating an earnings equation the choice of functional form is important because it has a direct impact on the results generated by the regression. Portes and Zhou (1996:219-221) compare the earnings of self-employed immigrants in the United States of America (USA) to that of wage or salaried workers. They argue that different choices on functional form can possibly lead to contradictory results in estimation. The two main choices of functional form are that of a linear equation or a log-linear equation. The most common functional form across the literature is that of the log-linear equation where one regresses the natural log of earnings on the linear combination of explanatory variables (Fairlie & Meyer, 1994:33-36; Fairlie & Meyer, 1996:788;

Portes & Zhou, 1996:220; Le, 1999:384; Bhorat, 2000:6; Clain, 2000:502; Hundley, 2000:102; Bhorat & Leibbrandt, 2001:124-127; Erichsen & Wakeford, 2001:6; Deininger, Jin & Nagarajan, 2006:20).

The log-linear functional form takes the natural log of the dependent variable and regresses it against a chosen linear combination of explanatory variables. The log-linear form is useful because its coefficients are easier to interpret (i.e. the percentage change in earnings due to a unit change in the explanatory variable) and it fits the data better (Portes & Zhou, 1996:220-221). Another advantage is that the logarithmic transformation pulls in the outliers that could affect the estimates. However, Portes & Zhou (1996:221) also argue that by adopting the log-linear method and drawing in the outliers, one tends to obscure a sizeable chunk of the results. Nonetheless, Heckman & Polachek (1974) argue that under the normality assumption the natural logarithm of earnings is the most appropriate simple transformation of the dependent variable

The linear functional form takes the dependent variable in its linear form and regresses it against the linear combination of chosen explanatory variables. The linear functional form is useful if one is looking at absolute earnings and not relative earnings (i.e. Rand gains per unit change in explanatory variable). Studies done by Boyd (1991) and Hamilton (2000) adopt the linear functional form. However, as stated earlier the preferred functional form is the log-linear form. The choice of functional form also rests upon the form the dependent variable takes.

In the literature the dependent variable takes the form of either annual, monthly, weekly or hourly earnings. Much of the literature on self-employed immigrants in the USA use annual earnings (Meyer, 1990:33; Boyd, 1991:457; Fairlie & Meyer, 1994:34; Fairlie & Meyer, 1996:788-789), whereas other studies use monthly earnings (Erichsen & Wakeford, 2001:13) or weekly earnings (Le, 1999:405). The more favoured form for the dependent variable to take is that of hourly earnings (Allanson, Atkins & Hinks, 2000:102; Mwabu & Schultz, 2000:311; Posel & Muller, 2007:9; Heintz & Posel, 2008:38).

Using hourly earnings as the dependent variable controls for variable hours worked by different workers. Workers do not all work for the same duration per day, per week, per month or per year. Some workers may work for three months and earn the same or more than other workers who work throughout the year. Importantly, using hourly earnings allows comparability of earnings among the self-employed. Comparability is allowed because by using hourly earnings as a measure the focus is on the earnings differential rather than differences in hours worked (Hamilton, 2000:613; Rospabé, 2002:204). The use of hourly earnings is especially relevant in studies of the self-employed because the hours that they work are more variable than those of the wage employed (Portes & Zhou, 1996:221; Hundley, 2000:102).

Data constraints also affect the actual measurement of earnings for the self-employed. Firstly, in South African household surveys such as the OHS and the LFS, respondents are asked for their total gross earnings including overtime, bonus and allowance payments before tax. In the case of self-employment, gross earnings would be total revenues less total expenses (gross profit). Some self-employed respondents may be inclined to understate or not even report gross profit due to confidentiality or privacy concerns. Some might not even know how to accurately calculate profit. This is exacerbated in the situation where one respondent answers on behalf of the whole household (i.e. proxy reporting). This respondent may have little knowledge of what the earnings of a family member's enterprise are. However, despite the difficulties in the measurement and interpretation of the earnings of the self-employed I use data from the Labour Force Surveys in the analysis to follow.

2.2.2 Explanatory variables in the earnings equation

The next step in estimating an earnings equation is to select the relevant explanatory variables. These explanatory variables indicate the individual, household and employment characteristics of the self-employed. These explanatory variables are selected according to *a priori*

expectations. In the next two sub-sections I review the variables used by researchers in the literature.

2.2.2.1 Standard explanatory variables used in earnings equations

There are a variety of variables or determinants that could be considered standard explanatory variables used in earnings equations. I categorise them into individual, household, and employment characteristics. Mincer (1962; 1970; 1974) who developed the human capital model of earnings estimated an earnings equation which tested the returns to education and work experience in employment (or on-the-job-training). With more research into the determinants of earnings, more determinants have been identified in earnings equations. Nonetheless, the standard Mincerian explanatory variables of education and work experience remain the fundamental determinants used in the estimation of earnings equations.

The main principle behind the role of education in the earnings determination process is that the more education an individual has the higher his earnings. Le (1999:387) explains that human capital and screening models predict the positive relationship between earnings and education. The human capital model suggests that the more educated an individual is then the more knowledge and skills that individual possesses. More knowledge and skills suggest greater productivity than less educated and thus less skilled individuals, which means that better educated individuals should be paid more. In terms of self-employment, this could possibly imply that the more educated a self-employed individual is, the more productive he is and thus the higher the earnings he is able to generate.

Screening theory does not hold to the above notion that earnings differences across levels of education are due to productivity enhancing effects of education (Le, 1999:387; Stiglitz, 1975:283). In screening theory, education acts as a sorting device where those with better

education are sorted into higher paying jobs. The reason for this is that employers use education to identify pre-existing differences in talent among employees. Those with better levels of education are filtered through to higher paying occupations in the economy. With regards to self-employment this could possibly imply that education could act as a filter so that only the well-educated get access to high return occupations in the economy (e.g. doctor, lawyer, financial advisor).

Across the literature there are two methods of estimating the returns to education in an earnings equation. The first is to measure education as a continuous variable by using years of education (Meyer, 1990:34; Boyd, 1991:454; Erichsen & Wakeford, 2001:14; Deininger, Jin & Nagarajan, 2006:20). The second method is to control for different levels of education, where these levels are measured using dichotomous dummy variables or education splines (Fairlie & Meyer, 1994:34; Portes & Zhou, 1999:229; Allanson, Atkins & Hinks, 2000:106; Bhorat, 2000:10; Clain, 2000:506; Hundley, 2000:96; Rospabé, 2002:205; Posel & Muller, 2007:12; Heintz & Posel, 2008:38).

The results in the literature confirm a positive relationship between education and earnings. In Le's (1999) study on the earnings of self-employed immigrants in Australia an extra year of education for a self-employed immigrant results in a 7 percent increase in earnings. Meyer (1990), Fairlie & Meyer (1994) and Fairlie & Meyer (1996) disaggregate the self-employed into different racial and cultural groups and investigate their earnings in the USA in 1980 and 1990. They find that being a high school graduate, having some college education or being a college graduate has a positive effect on earnings of the self-employed across all racial and cultural groups. Deininger, Jin & Nagarajan (2006) look at gender discrimination among the self-employed in India for the year 1999. They find that an extra year of education for a self-employed worker in an agricultural or a non-agricultural enterprise results in a 3.5 and a 3.6 percent increase in earnings, respectively.

In the South African literature I found no econometric studies which specifically estimate the earnings of the self-employed. Rather, studies either pool the self-employed and the employees (i.e. wage employed) together (Bhorat & Leibbrandt, 2001; Rospabé, 2002; Cichello, Fields & Leibbrandt, 2005; Casale & Posel, 2008; Heintz & Posel, 2008) or they restrict the sample to employees (Hinks 1999; Allanson, Atkins & Hinks, 2000; Mwabu & Schultz, 2000; Erichsen & Wakeford, 2001). In her analysis of the earnings for White and Black males in South Africa 1999, Rospabé (2002) finds that an extra year of primary, secondary or tertiary education for Black workers results in a 2.8, 9.3 and 24.3 percent increase in earnings, respectively. An extra year of primary, secondary or tertiary education for White workers results in a 27.4 percent decrease, 6.9 and 14.9 percent increase in earnings, respectively. There are a few interesting points from these results that tend to occur in South African earnings equations that are estimated across racial groups The first is that there is a negative coefficient on primary education for White workers. Studies by Hinks (1999:13-14), Allanson, Atkins & Hinks (2000:106), and Bhorat (2000:10) find similar results. Rospabé (2002:206) accounts for this result in terms of a very low number of White worker observations with less than a completed primary education, thus rendering the result unreliable.

The second point of interest is that Black workers have larger increases in earnings for each additional year of education than White workers (and in some studies it is shown that the same pattern is evident for Coloured and Indian workers). This result is found in Rospabé's (2002) study on the income gap between employed Black and White males for the year 1999. Rospabé controls for the level of education attainment using dummy variables that represent, no schooling, primary schooling, secondary schooling and tertiary schooling. The coefficient for each education dummy variable shows how Black workers have a larger percentage increase in earnings for each additional year of education than White workers. Similar results are found by Hinks (1999:13-14) and Allanson, Atkins & Hinks (2000). The third point is that the increase in earnings from an extra year of education increases as an individual moves to higher levels of education. A non-linear increase in earnings is also reported in studies by Hinks (1999:13-14), Allanson, Atkins & Hinks (2000), Bhorat (2000:7), Bhorat & Leibbrandt (2001:125), Posel & Muller (2007:12) and Heintz & Posel (2008:38).

The next variable from the standard Mincerian earnings equation is that of work experience. The experience variable distinguishes formal education from that of on-the-job training (Mincer, 1962:50; Le, 1999:389), and attempts to capture the effect of the additional human capital an individual receives whilst working (i.e. necessary skills to perform a job-related task) on earnings. Additional work experience is assumed to increase productivity on-the-job, thereby increasing earnings. The relationship between earnings and experience is predicted to be a non-linear relationship, with earnings initially increasing at a decreasing rate with experience and then stagnating.

To account for an expected non-linear relationship between earnings and experience, experience is typically represented as a quadratic in the earnings equation (Erichsen & Wakeford, 2001:15). Since information on work experience is often not captured in surveys, most authors simply use a quadratic in age (or in age less six less years of schooling). This represents not actual but rather potential experience and tends to overestimate experience because it fails to account for temporary exits from the labour market. Nonetheless, as predicted, the results from international studies on self-employment earnings support a positive, but non-linear relationship for the experience proxy (Meyer, 1990:34; Boyd, 1991:454; Fairlie & Meyer, 1994:34; Fairlie & Meyer, 1996:788; Le, 1999:393; Clain, 2000:506; Deininger, Jin & Nagarajan, 2006:20).

In the South African literature the experience variable is measured in the same manner and the estimated coefficients have the expected signs. The only difference is some authors use age and age squared (Hinks, 1999:13; Allanson, Atkins & Hinks, 2000:106; Posel & Muller, 2007:12; Heintz & Posel, 2008:38) and others use experience and experience squared (Bhorat, 2000:7; Bhorat & Leibbrandt, 2001:125; Rospabé, 2002:205).

Some authors enhance information on education with a variable that controls also for the level of proficiency in English (i.e. language of business in the countries concerned). This variable is

used in studies in the USA and Australia that research the labour market characteristics and earnings of immigrants in their countries (Boyd, 1991; Fairlie & Meyer, 1996; Portes & Zhou, 1996; Le, 1999). It is predicted that immigrants with a "good" command of English generate higher returns than those with a "poor" command of English, *ceteris paribus*. Those with a good command of English earn more because they are better able to understand their employers (or clients in the case of the self-employed) and thus carry out their jobs more efficiently and thus they are more productive. Similarly, Heintz & Posel (2008:38) augment human capital information with a variable that controls also for the level of literacy of a worker. In this case the authors use a dummy variable that is equal to one if the individual is able to read and write in at least one language. They find a positive relationship between literacy and earnings.

In addition to education and experience, there are a number of observable individual characteristics that have been found to significantly affect earnings. Gender is an obvious example. Women typically are found to earn less than men in the labour market. But there are few international studies that investigate gender earnings differences in self-employment specifically. Clain's (2000) study of self-employment in the USA in 1990 is an exception. Clain finds that women who choose self-employment have characteristics that are less valued by the market than women who choose wage or salary work. The opposite holds true for men. Her study is uncertain whether the gender gap in self-employment is a result of different supply decisions made by women or the result of greater constraints and discrimination faced by women.

Another key individual characteristic that is highly correlated with earnings is race. Studies typically find that being White is an economic advantage in the labour market. In South Africa, studies of earnings find that Whites earn significantly more than other race groups (Hinks, 1999; Allanson, Atkins & Hinks, 2000; Bhorat, 2000; Mwabu & Schultz, 2000; Erichsen & Wakeford, 2001; Rospabé, 2002). Similarly in the US, White workers on average tend to earn significantly more than other workers (cf. Fairlie & Meyer, 1994). Much of this literature then investigates how much of the race gap in earnings can be accounted for by productivity-related differences

among the employed and how much may be racial discrimination (Hinks, 1999; Le, 1999; Allanson, Atkins & Hinks, 2000; Erichsen & Wakeford, 2001; Rospabé, 2002).

It is also predicted that the earnings of the employed are affected by their marital status. The effect of marital status on earnings differs according to gender. In previous studies it is found that marriage has a positive effect and a negative effect on the earnings of self-employed men and women, respectively (Clain, 2000:507; Hundley, 2000:97). Becker (1985:35) argues that individuals have finite stocks of human energy and thus as they commit to more household work, their earnings capacity in the market declines. Since married women traditionally assume the load of increasing housework, earnings of self-employed women decline with marriage and this is confirmed in studies by Clain (2000:507) and Hundley (2000:105).

However, male earnings increase with marriage and the literature points toward an earnings premium in favour of married men over other men. The productivity hypothesis argues that marriage makes men more productive and thus they earn more (Casale & Posel, 2007:2). Greater productivity is a result of specialisation of labour in the household with men traditionally specialising in market activities and thus having greater opportunities to accumulate human capital in market activities than single men. Marriage may also result in increased motivation to increase earnings due to greater family responsibilities and household demand (Le, 1999:390; Hundley, 2000:97). Alternatively, the selection hypothesis states that men who are selected into marriage have the same observable characteristics as men who do well in the labour market (Casale & Posel, 2007:2). Rospabé (2002:205) confirms that the earnings of Black and White male self-employed and employees are positively affected by marriage. Similarly, Casale & Posel (2007:9) estimate that self-employed Black South African males who are married earn 16 percent more than otherwise identical (i.e. observable characteristics) Black men in self-employment.

In addition to individual characteristics, there are household characteristics that affect the earnings of the employed. For instance, the presence of children in the household affects the earnings of the employed in the household. The effect of children on earnings differs by gender. Much like with marriage, Hundley (2000:97-106) finds that the increase in family size (i.e. children in the household) affects male earnings positively because men have more responsibility and have to provide for the increased demand in household goods and services. However, with women, the effect of increased family size on earnings may be negative. Increased family size results in more household work and thus may be associated with a decrease in market earnings for the wife in the household (assuming women undertake the burden of the increasing amount of household work).

Where the household is located may also be expected to affect earnings, because location proxies for the nature of the labour market and earnings possibilities. In the South African literature this variable is either represented by provincial dummy variables, by an urban/rural dummy variable, or by both (Hinks, 1999:13; Allanson, Atkins & Hinks, 2000:106; Bhorat, 2000:6; Erichsen & Wakeford, 2001:16). The provincial location variable controls for differences in earnings and employment opportunities between provinces (e.g. one would expect that on average, opportunities and earnings in Gauteng are greater than in the Limpopo province). Rospabé (2002:208) finds that the earnings of White and Black males are higher in the Western Cape than in any other province. The urban/rural dummy variable controls for differences in earnings between urban and rural dwellers and it is predicted that urban dwellers earn more than rural dwellers. Recently the LFS has replaced the urban/rural component of the questionnaire with a "living in a metropolitan" area component (Posel & Muller, 2007:12; Heintz & Posel, 2008:38). It is found that living in a metropolitan area has a positive effect on earnings.

Earnings differences among the self-employed not only reflect differences in individual and household characteristics. The type of employment (i.e. employment characteristics) is also expected to influence earnings. The labour market can be divided into the informal and formal sectors. On the one hand, there is the formal sector which is characterised by employment

security, legislated labour protection, employment benefits, registered enterprises and higher earnings (Devey, Skinner & Valodia, 2003:21). On the other hand, the informal sector is characterised by relatively insecure employment, lack of protection from labour legislation, unregistered enterprises, low earnings and lack of employment benefits. The sector of employment has an affect on the earnings of the employed.

In studies on self-employment in the international literature, none has focused specifically on the earnings of the self-employed by sector. Literature from developed countries tended to focus on the formal sector of the labour market. In several studies on the South African labour market, a dummy variable controlling for sector of employment revealed higher earnings to those employed in the formal sector (employees and self-employed) (Rospabé, 2002:207; Cichello, Fields & Leibbrandt, 2005:177; Posel & Muller, 2007:11). Heintz & Posel (2008:38) disaggregate employment into eleven separate dummy variables in their earnings equations. They find that formal employment has significantly higher earnings than informal employment and this holds true for self-employment by sector. However, even within sectors significant earnings differences persist (Heintz & Posel, 2008:38).

The type of industry is also expected to influence earnings differences among the employed. In particular, South African studies include dummy variables (between eight and eleven, depending upon the data used) controlling for employment in different industries (Allanson, Atkins & Hinks, 2000:106; Bhorat, 2000:7; Bhorat & Leibbrandt, 2001:126; Rospabé, 2002:205; Cichello, Fields & Leibbrandt, 2005:177; Casale & Posel, 2007:8; Posel & Muller, 2007:11). Using the 1995 OHS, Bhorat & Leibbrandt (2001) estimate separate earning equations for a pooled sample of Black self-employed and employees from both genders and find that relative to agriculture, all other industries provide higher earnings. The electricity, transport, community services and finance industries supply the highest earnings for Black male and female employed. Using the 1999 OHS, Rospabé (2002) estimates separate earning equations for male Black and White self-employed and employees and finds that the manufacturing industry is the source of the highest earnings. She also finds that the utilities, finance and trade industries contribute greatly to Black

earnings, whilst the services and trade industries contribute greatly to White earnings. Hundley (2000:106) finds that the high earning industries for self-employed males and females in the USA are finance, established professions, other professions and transportation, and finances, respectively.

The type of job, or occupation, is also likely to be significant in accounting for differences in earnings. In addition to the industry variables mentioned above, authors often include dummy variables that capture the occupation of the employed (Hinks, 1999:13; Allanson, Atkins & Hinks, 2000:106; Bhorat & Leibbrandt, 2001:126; Erichsen & Wakeford, 2001:19; Casale & Posel, 2007:8; Posel & Muller, 2007:11). Some studies break up the occupations into skilled (i.e. legislative & managerial, professional, technical and associate professional), semi-skilled (i.e. clerks, service/sales, skilled agriculture & fishery, craft workers and machine operators) and unskilled (i.e. elementary occupations and domestic workers) (Bhorat & Leibbrandt, 2001:126; Rospabé, 2002:205). The hypothesis is that those in skilled occupations earn more than those in semi-skilled and unskilled occupations and this is confirmed in studies by Rospabé (2002:207) and Bhorat & Leibbrandt (2001:126). The idea is that type of occupation may control for the abilities and skills of a worker and thus more skilled workers are found in higher earning occupations (Erichsen & Wakeford, 2001:16).

In addition to sector of employment, type of occupation and type of industry, the earnings of a self-employed individual are affected by whether or not that individual is an own account worker (i.e. does not employ anyone else) or not an own account worker (i.e. employs others). The self-employed who employ others are associated with larger employment activities that are able to generate higher returns while the self-employed who work on their own account are associated with smaller employment activities that generate lower returns. Heintz & Posel (2008) estimate earnings equations with dummies that control for employment categories, and find that the self-employed in the informal sector that do not work on their own-account earn more than those who work on their own-account.

2.2.2.2 Other possible explanatory variables used in earnings equations

In the previous section I reviewed the standard explanatory variables that are used in earnings equations. Few studies focus specifically on the self-employed, but there are a number of variables that may be relevant particularly to understanding earnings differences in self-employment. In this section I focus on other possible explanatory variables that have been investigated by researchers. These variables are not commonly used for a number of reasons but the major reason would be due to data constraints. However, when the data contains the relevant information, these variables can provide valuable results and insights on what characteristics are helping to determine earnings among the self-employed.

The ability to access credit is an important means of generating the necessary capital an enterprise needs in order to operate. An enterprise needs capital in order to buy stock, purchase premises and most importantly to get the business started. Thus access to credit is vital in terms of the success of the business. In Cichello's (2005) study on the hindrances to self-employment in the Khayelitsha/Mitchell's Plain district in South Africa, he finds that among the self-employed, lack of access to capital is identified as an important constraint on the earnings potential of small businesses. Not only are the self-employed hindered by the lack of access to credit but the KMP survey also finds that this is the major barrier to entry experienced by the unemployed and the previously self-employed. Boyd (1991), Fairlie & Meyer (1994) and Fairlie & Meyer (1996) research self-employed immigrants and minority groups in the USA and argue that rotating credit associations within a minority group serve as a major advantage in terms of the ability to start a business and the ability to make a success of the business. Thus individuals with more assets are likely to have more access to formal credit and so be more successful.

Self-employment earnings may also be affected by individuals' previous work experience and their attitude to risk (Fairlie & Meyer, 1996). Individuals who have strong managerial ability, who are prepared to take calculated risks, and have a substantial asset base would be predicted to

have higher earnings. However, this kind of information is difficult to collect in surveys and little research has been conducted using these kinds of measures. Attitude to risk would be an important unobserved characteristic typically omitted from earnings equations.

Boyd (1991) and Fairlie & Meyer (1994) discuss cultural values and institutions and how these factors may influence not only the probability of entering self-employment but the earnings of the self-employed. The impact of cultural values and institutions on the probability of entering self-employment and the success in self-employment are found more in the sociology literature. For instance some cultural groups may have what Fairlie & Meyer (1994) call ethnic resources which include entrepreneurial cultural endowments, skills transfer from co-ethnics, access to cheap co-ethnic labour, access to rotating credit associations, comparative advantage in ethnic products such as food, and group solidarity. Other groups may have what Fairlie & Meyer (1994:3-10) call class resources which include certain values, attitudes and knowledge, intergenerational transmission of skills and knowledge, and financial capital. Again these cultural values may have an impact on the earnings of the self-employed but it is very difficult to capture information on, and measure, cultural values. Some studies suggest race can be used as a proxy for culture (Meyer, 1994; Fairlie & Meyer, 1996), but given differences within groups, this is likely to be only a crude measure.

From the investigation in Section 2.2.2.1 it becomes clear that earnings estimations are able to control for the observable and measurable characteristics of individuals. However, as the discussion in this section has suggested, some individual characteristics that may be expected to affect earnings are difficult to measure or collect information on. This information is therefore omitted from the earnings equation. The next section considers how this omitted variable bias, or selection bias, can be addressed, and why controlling for selection is so difficult in South Africa.

2.2.3 A note on the selection equation

In the literature on the earnings of the employed it is often found that authors estimate a selection equation before estimating the earnings equation (Fairlie & Meyer, 1994; Le, 1999; Clain, 2000; Hundley, 2000; Bhorat & Leibbrandt, 2001). In most studies authors use Ordinary Least Squares (OLS) to estimate the earnings equations. However, if the sample is truncated in a non-random manner then the OLS earnings equation suffers from sample selection bias. Sample selection bias affects the robustness of the earnings equation estimates. The selection equation is estimated in order to account for the sample selection bias in the earnings equation estimates. The sample selection bias arises from the fact that when one estimates a wage equation one is only looking at observations that were self selected into the sample (i.e. those who are employed). Selection bias is caused by unmeasured variables, which can be thought of as similar to omitted variable bias. The unmeasured variable affects both the dependent variable and the probability of being selected into the sample. For instance, the unmeasured variable could be "innate ability" (cannot be quantified) and this affects the earnings of the workers as well as their probability of being employed. Therefore to address this problem authors estimate a selection equation.

The most common estimation procedure used to estimate the selection equation is the Heckman two-stage estimation procedure (Fairlie & Meyer, 1994:35; Le, 1999:385; Clain, 2000:502; Hundley, 2000:102). The Heckman two-step procedure involves estimating a probit model with a categorical dependent variable (e.g. employed = 1 and not employed = 0) being regressed against independent variables that help determine why a labour force participant is employed. The estimates generated from the selection equation are then used to calculate the inverse Mills ratio or lambda for each observation. Once the inverse Mills ratio has been entered into the earnings equation it becomes evident whether it is statistically significant or not and thus whether there is the presence of sample selection bias or not.

The lambda coefficient tells us whether an individual is positively selected into the type of employment under investigation or not. If the lambda coefficient is positive then that means that there is positive selection into the type of employment under investigation. In terms of self-employment it is found that the sign of the lambda coefficient and hence the positive or negative selection into a specific type of employment is related to the gender and/or race of the individual. For instance, Clain (2000) finds positive selection of males into self-employment and negative selection of females into self-employment. The author suggests that this result may reflect that men have a comparative advantage in this type of employment.

The estimation of selection equations are not restricted to addressing sample selection bias in earnings equations. Bhorat & Leibbrandt (2001) look at the earnings of Black male and female employees and self-employed in South Africa and suggest that the selection mechanism is more complex than the standard selection mechanism. In South Africa, with its very high unemployment rates, employment is not synonymous with labour force participation. In other words, there is a more complex selection process at work; first, individuals decide to enter the labour market (i.e. they become labour force participants); but then there is selection among labour force participants into employment. It is very difficult to independently identify selection into labour force participation and then selection into employment. For this reason I do not control for selection in my analysis of self-employment earnings. However, it must be recognised that omitted variables may bias the estimated returns to observable characteristics in the earnings equation.

2.3 The decomposition of earnings differentials

When looking at the earnings of groups of individuals it is often found that earnings differentials exist between these groups. For instance, it is well documented in the literature that there is a gender earnings gap present in most countries. In South Africa there is a gender earnings gap and a racial earnings gap. As mentioned above, earnings equations help identify the observable

characteristics that help determine the earnings of the employed. Suppose there are two self-employed workers, one Black and one White, with exactly the same observable characteristics (i.e. same education, work experience etc.). Intuitively one would expect these two individuals to earn the same amount, but what if there was an earnings differential between them? These two individuals have the exact same observable characteristics, except for race, yet they are not earning the same amount of income. There must be some other factor that is not being taken into account.

This is where earnings decompositions become useful because they are able to partially account for that other factor. When earnings are decomposed they are broken up into a number of components. The standard Oaxaca-Blinder decomposition technique decomposes the earnings differential into two main components (Blinder, 1973: Oaxaca, 1973). Cotton (1988:236) describes these two components as 'skill' and 'treatment' components. The first is the explained component (skill) which represents what part of the earnings differential is due to differences in observable characteristics. The second is the unexplained (treatment) component, which represents the part of the earnings differential that is due to differences in returns to observable characteristics and differences in the intercepts between the two wage equations (i.e. a premium just for being in that group). The earnings differences accounted for by the unexplained component can be cautiously understood as discrimination (Rospabé, 2002:188).

The need for the development of decomposition techniques came about with the work done by Becker on the neo-classical theory on discrimination. The decomposition of earnings differences between, male and female workers, or Black and White workers, allowed researchers to quantify the level of discrimination present in the labour market concerned. Becker defines discrimination in terms of differences in earnings received by different groups with equal levels of skill (Becker, 1971:14; Chiswick, 1973:1332). Becker argued that individuals hold tastes for discrimination that influence their utility functions and that they must act as if they are willing to pay something, directly or in the form of a reduced income, to be associated with some persons instead of others (Becker, 1971:14). Becker suggested three forms of discrimination (Allanson,

Atkins & Hinks, 2000:98; Erichsen & Wakeford, 2001:9). Employer discrimination or employer nepotism means that an employer favours certain types of workers over others and thus pays the favoured workers higher wages because in doing so the employer increases his utility. Employee discrimination means that certain workers need to be compensated with higher earnings for having to work alongside other groups of workers.

The third form of discrimination mentioned by Becker, which is more relevant to self-employment, is that of consumer discrimination (Borjas & Bronars, 1989:583; Meyer, 1990:21; Boyd, 1991:450). Consumer discrimination occurs when consumers are willing to pay higher prices for goods purchased from a specific group. The theory behind consumer discrimination is found mainly in the USA literature and argues that the presence of consumer discrimination impacts negatively on the earnings of those who are being discriminated against. It is argued that White Americans are only willing to purchase certain goods and services, and often at a lower price, from African Americans. The result is what could be seen as a vicious circle. African American enterprises do not get much business from White Americans and thus this has a negative impact on their earnings. The negative impact on earnings adversely affects the ability to purchase stock or the capacity to provide a service and thus African American enterprises battle to satisfy the demand of African Americans who then purchase these goods and services from White business. The authors also talk of a queuing system where only certain minorities in the USA are deemed fit to provide certain goods and services to White Americans. African Americans seem to be at the back of the queue. The end result is that consumer discrimination impacts negatively on the earnings of certain groups. Thus by decomposing earnings differences between Black and White self-employed workers I am able to identify how much of an earnings gap can be explained by different endowments between two groups, and how much may reflect discrimination.

2.3.1 Decomposition techniques

There are a number of decomposition techniques available to the researcher but the first earnings decomposition originated from the work done by Oaxaca (1973) and Blinder (1973). Future decomposition techniques made additional modifications to this original earnings decomposition. The original technique decomposed the earnings gap into the differences in characteristics component (explained component) and the discrimination component (unexplained component) (Cholezas & Tsakloglou, 2005:9). The explained component represented the part of the earnings differential that was due to differences in mean characteristics (e.g. education). The unexplained component is the part of the earnings differential that is due to differences in the estimated parameters of the earnings function and differences in the intercept term for the two groups (the unexplained residual that was assumed to be discrimination).

Cotton (1988:237-238) found a number of problems with this original technique. The first major problem was that the results of the decomposition would differ depending upon which groups wage structure was assumed to be the "base wage" (index number problem) (Appleton, Hoddinott & Krishan, 1999:291). Related to the index number problem was the assumption that one of the groups wage rates was not affected by discrimination and if discrimination was removed then this groups wage would remain the same. However, this assumption may not be correct if the discriminated group's wage is undervalued and the non-discriminated group's wage is overvalued.

A further limitation of the Oaxaca-Blinder decomposition technique concerns the interpretation of the residual. For the residual to be an exact measure of labour market discrimination, all the factors that determine earnings in the earnings equation need to be present and properly accounted for. If the earnings equation is not properly specified (i.e. there are omitted variables) then the discrimination component will be biased. In particular, if unobserved attributes (such as motivation and effort) are positively correlated with earnings, then the residual in the earnings

equation, which will include the effects of these characteristics, will be over-estimated. Conversely, if these unmeasured characteristics are negatively correlated with earnings, the residual will be under-estimated. Some decompositions therefore have been modified by the inclusion of a selectivity correction term to account for sample selection bias (Cholezas & Tsakloglou, 2005:9-10).

The difficulty in controlling for selection, however, is identifying variables that influence selection but which do not belong in the earnings equation (the exclusion restrictions). As explained earlier, in South Africa, with very high unemployment rates, it is even more difficult to address complex selection issues in the earnings estimations.

Nonetheless, I use the Oaxaca-Blinder decomposition technique in the analysis to follow in Chapter Five. The next section reviews a few studies relevant to this dissertation.

2.3.2 Decomposing earnings differentials

Le (1999) investigates the earnings of foreign-born male immigrants and Australian-born males who are either self-employed or employees in Australia for the year 1991. Le (1999:396) uses Blinder's (1973) approach which decomposes the earnings differential into three components. These components represent the part of the differential due to differences in endowments (explained), due to different parameters in the earnings equations (unexplained and possibly due to discrimination), and due to selectivity bias. Le (1999) decomposes the earnings equations of the foreign-born immigrants and that of the native-born. It is found that foreign-born do relatively well in wage or salary employment as opposed to self-employment when compared to the native-born (i.e. a 6 percent advantage in wage employment and a 4 percent disadvantage in self-employment). The native born do better in self-employment because of differences in coefficients or the way that productivity related characteristics are rewarded in self-employment.

Differences in endowments play an insignificant role in the native-born earnings advantage in self-employment.

Studies from other countries that estimated earnings decompositions focussed mainly on the gender wage gap. The study by Le (1999) was the only study that I came across that specifically decomposed the earnings among two groups of the self-employed. However, there is literature on the South African labour market that conducts racial earnings differential decompositions. Studies by Hinks (1999), Alanson, Atkins & Hinks (2000) and Erichsen & Wakeford (2001) used a multilateral decomposition analysis to decompose the earnings differential between Black, White, Coloured and Indian employees in the early post-apartheid period. All three of the studies used a pooled earnings function to determine the non-discriminatory wage structure. All three studies found that a hierarchy in earnings between race groups exists within the South African labour market. This earnings hierarchy is topped by Whites and followed by Indians, Coloureds and then Blacks. Analysing data from the 1994 October Household Survey, Allanson, Atkins & Hinks (2000:108-115) find that productivity differences (i.e. the explained component) explain roughly two-thirds of the White-Black earnings differential and approximately all the White-Coloured and White-Indian differentials. The unexplained residual component explains roughly a third of the White-Black differential which is suggested to be attributable to discriminatory overpayment of Whites and discriminatory underpayment of Blacks. Hinks (1999) aimed to determine whether racial wage discrimination has declined in the South African labour market over the period 1980 to 1997. He found that the racial hierarchy in earnings has declined marginally over the period. Through estimating earnings decompositions for 1993 and 1995, Erichsen & Wakeford (2001:17-30) find that Black males are underpaid and that the major contributor to the earnings differential is their below average productivity characteristics. Positive discrimination was found to be most favourable to White workers and accounting for between 40 and 50 percent of the observed wage differential. They also find a slight increase in racial wage discrimination from 1993 to 1995.

I did not come across any study in the South African literature that dealt specifically with the decomposition of the racial earnings gap among the self-employed. However, Rospabé (2002) estimated racial earnings decompositions between a pooled sample of Black and White self-employed and employees. Rospabé (2002) looks at racial discrimination between the Blacks and Whites in labour participation, access to high skilled occupations and wage gaps. She decomposes the earnings differential between Black and White employees and self-employed for the years 1993 and 1999. She finds that the earnings differential has decreased over the period and that the major component of the earnings gap is the explained productivity component. However, the contribution of this component to the wage differential has decreased over the period. The unexplained component or discriminatory component accounts for 23 percent of the wage gap in 1993 and 29 percent in 1999. Thus earnings discrimination has increased slightly over the period. Thus what is evident from the above studies is that the Black-White wage gap persists in South Africa and that it may be partially caused by discrimination in the labour market.

2.4 Conclusion

This chapter started by reviewing recent research on aspects of self-employment and trends in self-employment in South Africa. From the literature it is evident that self-employment in South Africa has grown, but very modestly, over the period 1995 to 2003. The growth in self-employment has occurred across both the informal and formal sectors of the economy. The informal sector has become an increasingly dominant source of self-employment over the period; however it has not proven to be the "residual sponge" hypothesised in dualist labour market theories. The Black and White self-employed tend to be found predominantly in low return unskilled to semi-skilled informal sector occupations, and high return high skilled formal sector occupations, respectively. It is clear from trends presented in the literature that a racial hierarchy in earnings persists in South Africa. Earnings equations are estimated in order to establish what observable characteristics are determining the earnings of the self-employed. The literature reveals individual, household and employment characteristics that determine the earnings of the

self-employed. However, there are determinants that are unobservable or hard to measure. These include unmeasured attributes that may be correlated with earnings (such as motivation and attitudes to risk among the self-employed) and discrimination (such as consumer discrimination among the self-employed). Earnings decompositions can be used to disaggregate the racial earnings gap between Black and White self-employed in South Africa, into an explained component (explained by differences in measured characteristics), and an unexplained component (reflecting, in part, the effects of discrimination).

Chapter Three: Research design and methodology

In this chapter I start by identifying the data sets that are used in my analysis of earnings in self-employment and my reasons for using them. In the next section I define the sample used in my analysis. Thereafter, I describe the methods of analysis employed to analyse the data, the variables that I use in my analysis and the limitations of the data and methods used in the analysis.

3.1 Data

The data that I use in my analysis come from the Labour Force Surveys conducted by Statistics South Africa (Stats SA). The Labour Force Survey (LFS) was introduced in 2000 to replace the October Household Survey (OHS). It is a bi-annual nationally representative household survey that is conducted in February and September each year. The LFS has a sample size of approximately 30 000 households (except for the March 2000 pilot LFS which only sampled approximately 10 000 households), which translates into roughly 100 000 individuals. The key objective of the LFS is to collect detailed labour market information. The LFS aims to provide improved measures of employment and unemployment as well as to provide more comprehensive information on irregular forms of employment such as informal sector employment and small-scale agricultural activity (Muller & Posel, 2004:3). The LFS is the most comprehensive source of labour market data in South Africa and thus there are a number of advantages in using this data.

The first major advantage of the LFS data is that it captures irregular and informal work more efficiently than previous household surveys such as the OHS. Casale, Muller & Posel (2004:981) explain that this is because the LFS provides a far more detailed description of what constitutes a job, and includes prompting techniques to capture a wider net of employment

activities. For instance, a respondent is prompted to report employment even where an individual was engaged in an activity for only an hour the previous week. Thus the LFS seeks to capture also marginal forms of employment activity. This implies that when looking at self-employment the data will capture individuals ranging from owners of companies to small-scale survivalist activities. Thus we get a full picture of self-employment in South Africa.

One of the problems faced by recent studies in South Africa is that they have had to analyse data across years that use different survey instruments to measure labour market information. For instance, Casale, Muller & Posel (2004:983) found that employment in subsistence agriculture jumped from 136 000 in 1999 (OHS as a survey instrument) to 748 000 in 2000 (LFS as a survey instrument). Is it possible that subsistence agriculture jumped by over 600 000 jobs in one year? Casale, Muller & Posel (2004:982) argue that the estimates for informal and subsistence farming are likely to be affected by definitional changes used to capture employment with the introduction of the LFS. Thus when analysing estimates across years using different survey instruments a researcher needs to take into account the possibility that differences in estimates may be due to real differences or simply due to differences in survey design. However, a long enough period of time has elapsed since the introduction of the LFSs to use only LFSs to explore changes in labour market information over time. This is an advantage for my dissertation because I am provided with a consistent instrument to explore trends in self-employment for the period 2000 to 2006.

In the analysis to follow I use data from the September rounds of the 2000, 2002, 2004 and 2006 labour force surveys. I use the September rounds in order to avoid seasonal effects.

3.2 Sample definition

A self-employed individual is someone who operates his own business or engages independently in a profession or trade (Le, 1999:404). A self-employed individual works for himself as opposed to an employee who works for someone else. I define the sample of self-employed for this study using two options in Question 4.3 of the LFS questionnaire[6]. Firstly, an individual is defined as self-employed if the individual works on his own or on a small household/farm/plot or collects natural products from the forest or the sea. Secondly, an individual is also defined as self-employed if that individual works on his own or with a partner, in any type of business (including commercial farms). The first option implies that entrepreneurship is not synonymous with self-employment because this option includes those engaged in subsistence farming and possibly survivalist-type activities. The second option includes those who we would consider as entrepreneurs. Thus in my sample of the self-employed I am including self-employed individuals who could be considered as entrepreneurs as well as self-employed individuals engaged in survivalist activities.

I do not restrict the analysis to either agricultural or non-agricultural activities in self-employment. The sample includes self-employed individuals involved in both agricultural and non-agricultural activities. The self-employed individuals included in the sample can range from own-account workers (i.e. self-employed individuals working for themselves; employing no-one else) to employers (i.e. self-employed individuals who employ others). Thus I include the full spectrum of possible activities in self-employment.

The sample includes self-employed individuals who are of working age (15-65 years). I restrict the sample to self-employed individuals for whom non-zero working hours are reported, and

[6] Question 4.3 of the LFS 2000:2, LFS 2002:2, LFS 2004:2 and LFS 2006:2 seek to establish who an individual works for. It seeks to establish whether an individual works for someone else for pay (i.e. employee), works for one or more private households as a domestic employee, gardener or security guard, works on his/her own or on a small household farm/plot or collecting natural products from the forest or sea (i.e. self-employed), working on his/her own or with a partner, in any type of business (i.e. self-employed), or helping without pay in a household business.

where hours worked are not in excess of 112 hours per week. Some respondents state that they work zero hours a week but at the same time they insist that they are employed[7]. I remove these individuals from the sample. Other individuals state that they work weekly hours in excess of 112 hours[8]. These individuals are claiming to work over 16 hours a day, seven days a week (one respondent claimed to be working 24 hour days seven days a week). Such extreme weekly working hours seem unlikely and thus I also remove these individuals from the sample.

The sample contains both male and female self-employed individuals. This could pose a problem in the econometric analysis because the factors that influence whether men or women enter self-employment and the factors that determine their earnings are possibly different. However, if I only looked at the self-employed from one gender then my sample size becomes significantly smaller and this will affect the estimates in my regressions. Thus I choose to include a gender dummy variable in my earnings equations that will control for intercept gender effects.

I include in the sample individuals for whom positive earnings values are reported. In addition, there are also a number of self-employed individuals who report zero earning responses or missing earnings responses[9]. I impute earnings values for these individuals and thus include them in the sample.

[7] In the LFS 2004:2 (I use the LFS 2004 data because it is the data I use in the econometric analysis) data, approximately 0.13 percent of my working-age self-employed sample report zero working hours per week.
[8] In the LFS 2004:2 data, approximately 0.25 percent of my working-age self-employed sample report weekly working hours in excess of 112 hours.
[9] In the LFS 2004:2 data, approximately 12 percent, 10 percent and 78 percent of the self-employed sample report zero, missing and positive earnings responses, respectively.

3.3 Methodology

I use descriptive analysis to track changes in the extent and composition of the self-employed over time, and to examine the average characteristics of the self-employed and the earnings distribution at one point in time. I use econometric analysis to investigate earnings differences among the self-employed in South Africa.

3.3.1 Earnings equation

The first method used in my econometric analysis is the estimation of earnings equations. I use the standard semi-logarithmic Mincerian form of the earnings equation that is found across much of the literature (Mincer, 1962; 1970; 1974). The standard Mincerian form of the earnings equation regresses a linear combination of explanatory variables, measuring education and work experience, against the logged dependent variable, of hourly earnings. As with many other earnings equations in the literature, I also include other explanatory variables that may be productivity related or that affect employment opportunities.

I will estimate the following earnings equation:

$$\ln(W_i) = \alpha + \beta X_i + \varepsilon_i \qquad (1)$$

Where

$W_i = hourly\ wage\ of\ individual\ i$

$X_i = vector\ of\ individual, employment\ and\ household\ parameters$

$\beta = vector\ of\ coefficients$

$\varepsilon_i = error\ term$

I use the Ordinary Least Squares (OLS) estimation method to estimate the above earnings equation. I estimate four earnings equations with the specified samples. However, the samples used for each estimated earnings equation differ according to the race groups included. The first earnings equation is estimated using the entire self-employed sample and thus includes individuals across all four major race groups in South Africa. The second earnings equation is estimated for a pooled sample of self-employed Blacks and self-employed Whites. The third and fourth earnings equations are estimated for individual samples of self-employed Blacks and self-employed Whites, respectively.

3.3.2 Dependent variable

The dependent variable in the earnings equations is the log of hourly gross earnings. I restrict the analysis to earnings and thus I do not consider the non-pecuniary benefits of certain kinds of employment[10]. I calculate the earnings figures manually with the use of earnings responses from the LFS[11]. Earnings responses in the LFSs come in the form of either a point response or a bracket response. A point response is an exact numerical response by the respondent to Question 4.15 a) and the relevant time period for the earnings response is stipulated in Question 4.15 b)[12]. If a respondent does not know or refuses to answer Question 4.15 a) then the respondent is directed to Question 4.15 c), which provides earnings bracket categories by time period. The respondent can then choose into which bracket his and/or other household members' earnings fall into. In most of the literature on earnings in South Africa, authors convert earnings in

[10] This may certainly be the case with self-employment where individuals may be more inclined toward self-employment because of possible non-pecuniary benefits. For instance, a mother can work from home and still keep an eye on the children. A self-employed individual may have more flexibility in terms of leisure time and there is also the benefit of being one's own boss. Non-pecuniary benefits are excluded from the analysis due to lack of available data.

[11] Hourly earnings is calculated by taking total monthly earnings [data from Questions 4.15 a) – c)] and dividing it by the product of weekly hours worked [data from Question 4.21 a)] times 4.38 (i.e. convert weekly hours worked into monthly hours worked). Then in order to specify the earnings equation correctly, hourly earnings are converted to the log of hourly earnings. However, if hourly earnings are positive but less than one Rand per hour, then the log of hourly earnings will be negative. In order to avoid negative log hourly earnings I convert positive reported hourly earnings that are less than unity to one.

[12] Earnings responses are determined by responses to Questions 4.15 a), b) and c) across the LFS 2000:2, LFS 2002:2, LFS 2004:2 and LFS 2006:2.

brackets to point values by assigning to the bracket response the midpoint of that respective bracket (Casale, Posel & Muller, 2004; Posel & Casale, 2005; Kingdon & Knight, 2007). I adopt the same approach in this dissertation.

However, there are a number of issues and complications with earnings information collected in household surveys and particularly with the earnings of the self-employed. For instance, Hamilton (2000:610) argues that self-employed workers are often excluded from labour market studies because of difficulties in measuring and interpreting their earnings. In the LFSs, Question 4.15 a) asks for an individuals total salary/pay at his/her main job (including overtime, allowances and bonus, before any tax and deductions), and thus a self-employed individual would respond to the question by providing an estimate of his net profit before tax. The problem here is that net profit is prone to underreporting. What Lillard, Smith & Welch (1986) term the fear of "governmental or other uses of the data", may persuade high-income earners to underreport profits and overstate expenses. Individuals may feel a general mistrust toward state institutions with regard to privacy of information reported in surveys and particularly when businesses are not registered. Furthermore, Posel and Casale (2005:3) argue that response rates (and possibly the accuracy of reported earnings) may be adversely affected by a higher "cognitive requirement" when income sources are irregular or sporadic (as may be the case with survivalist self-employed) or diverse (as may be the case with professionally self-employed). The problem is compounded when there is proxy reporting of earnings. Thus earnings information for the self-employed may be measured with error.

Another issue to consider in the measurement of earnings relates to the time period in which one specifies the earnings of an individual. In Chapter Two it was found that studies on the earnings of the self-employed specified earnings as either annual, monthly, weekly or hourly earnings. Which time-period is most desirable? According to Hamilton (2000: 615) and Rospabe (2002: 204) it is important to measure earnings as hourly earnings when estimating earnings equations. The reason for using hourly earnings is that it focuses on the earnings differential rather than differences in hours worked. This is especially important when estimating earnings equations for

the self-employed. Hundley (2000:102) finds that self-employed workers have highly variable working hours when compared to wage employees (what they term as organisationally employed workers). Thus in order to account for variability in working hours, the conversion of annual or monthly earnings into hourly earnings is very important when estimating earnings equations for the self-employed.

The conversion of annual or monthly earnings into hourly earnings may also prove to be an issue of concern. Hourly earnings data are generated using information collected in hours worked[13]. If this information is collected with error, and particularly if the error is non-random, then it will be introducing bias into the dependent variable. However, measurement error in the dependent variable typically does not lead to biased estimates in the parameters and the variances; it does however result in larger variances in the estimates of the parameters (Gujarati, 2003:525).

There are two more complications with earnings derived from LFS data. Firstly, earnings values derived from LFS data do not account for the value of production for own-consumption and thus many who are employed in subsistence agriculture report zero earnings (Heintz & Posel, 2008:36). Secondly, a significant number of respondents fail to disclose their earnings (i.e. termed missing earnings). In dealing with zero and missing earnings responses it is essential to determine whether these responses comprise a significant proportion of the sample. If not, then these responses can be simply ignored. If so, then it is important to determine whether these responses are distributed in a non-random manner. If they are distributed randomly across the sample then they can be ignored. However, if they are distributed in a non-random manner then one needs to impute earnings values for these zero and missing earnings responses. When dealing with the LFS data I chose the latter alternative.

[13] The hours worked data used to generate the hourly earnings data is collected from Question 4.2.1 a) from the LFS 2000:2, the LFS 2002:2 and the LFS 2004:2. It is collected from Question 4.2.4 a) in the LFS 2006:2. These questions ask how many hours per week, including overtime, does an individual usually work in his/her main job/activity.

In the LFS 2006:2 I find that 15 percent of the self-employed report zero earnings (although they worked 20 hours a week on average) and nine percent report missing earnings. Thus to exclude 24 percent of the self-employed sample, a significant percentage of the sample, could possibly bias the earnings estimates. Furthermore, zero and missing earnings responses are not distributed randomly across the self-employed sample and this is particularly evident when highlighting the distribution of these responses across race. The data reveal that 81 percent of those who report zero earnings in the self-employed sample are Black and work in informal sector agriculture. Conversely, self-employed individuals who fail to disclose their earnings disproportionately work in the formal sector (62 percent) of which the majority are White (64 percent of the 62 percent). To exclude relatively low income earners in informal self-employment and relatively higher income earners in formal self-employment is likely to produce biased regression coefficients in the estimations to follow. In particular, the expected earnings differential between formal and informal self-employment would be smaller if the zero and missing responses were to be dropped. I therefore impute earnings for the zero and missing earnings responses using simple imputation techniques.

3.3.3 Independent variables

The independent variables that I include in the earnings equation regressions can be divided into three basic vectors of characteristics, namely individual characteristics, employment characteristics and household characteristics. The vector of individual characteristics includes the two standard Mincerian explanatory variables that control for experience and education. Many authors use (age – years of schooling – six) to proxy for "experience". However, this formulation is problematic in South Africa because there is considerable discontinuity in employment and thus I use age because it is simpler. Age is represented as a continuous quadratic variable in the earnings equation. Education is controlled for by dichotomous dummy variables representing the main levels of education (i.e. incomplete primary, complete primary, incomplete secondary, matriculation, higher education). A literacy dummy variable designed to augment information on education is also included in the regression to control for an individual's

ability to read and write. Dummy variables describing a self-employed individual's marital status is also included under the vector of individual characteristics. The final two individual characteristics are dummy variables that control for the race (i.e. Black, Coloured, Indian and White) and the gender of an individual.

The independent variables in the earnings equation also need to control for type of employment or occupation and thus I include a vector of job characteristics. I include dummy variables that capture the main occupation type of the self-employed individual. In addition, I incorporate registration of enterprise dummy variables, which represent whether the self-employed individual works in the formal or informal sector of the South African economy. Finally, dummy variables capturing access to formal credit and access to informal credit are included. The dummy variables capturing access to credit are included because they may influence the scale of the operation.

In addition, I include a dummy variable that controls for the type and scale of the activity in self-employment. This dummy controls for whether a self-employed individual operates on his own account or whether a self-employed individual employs others in his business operations. A self-employed individual who employs others may be associated with a larger scale operation that generates higher returns and hence the self-employed individual may be considered an entrepreneur. A self-employed individual who works on his own account may be more prone to a smaller scale operation with lower returns and thus considered to be involved in subsistence activity rather than entrepreneurial activity.

A vector of household characteristics is incorporated into the earning equations. This vector firstly controls for the location of the household. Nine dummy variables controlling for the province of residence in South Africa are included as well as a dummy depicting whether a household is situated in a metropolitan area or not. The presence of children in the household is

also controlled for by including two dummy variables accounting for children under seven years of age and children older than seven and less than fifteen years of age in the household.

3.3.4 Earnings decomposition

The regressions on the earnings equations tackle the primary objective of this dissertation by identifying the significant determinants of earnings in self-employment. However, this dissertation also seeks to explore the large earnings gap in self-employment among Blacks and Whites in South Africa. Dissecting the earnings gap is achieved by decomposing the earnings differential. The Black-White earnings differential is decomposed using the Oaxaca-Blinder decomposition technique (Blinder, 1973; Oaxaca, 1973):

$$\overline{\ln(W^W)} - \overline{\ln(W^B)} = \sum_i \beta^W (\bar{X}_i^W - \bar{X}_i^B) + \{(\alpha^W - \alpha^B) + \sum_i \bar{X}_i^B (\hat{\beta}^W - \hat{\beta}^B)\} \quad (2)$$

W^W = white earnings structure - base earnings structure

W^B = *black earnings structure*

$\sum_i \beta^W (\bar{X}_i^W - \bar{X}_i^B)$ = *Explained component – difference in observable charactersitics*

$(\alpha^W - \alpha^B)$ = *Unexplained component – difference in intercepts*

$\sum_i \bar{X}_i^B (\hat{\beta}^W - \hat{\beta}^B)$ = *Unexplained component – difference in returns to observable charactersitics*

The Oaxaca-Blinder decomposition technique breaks the average wage gap between high-earning (i.e. White self-employed sample) and low-earning (i.e. Black self-employed sample) workers into two main components, namely the explained component and the unexplained component. The explained component [the first-term on the right-hand side of equation (2)] represents the part of the earnings differential that can be explained by differences in the observable characteristics of the two samples. The explained component measures the value of the advantage in endowments possessed by the self-employed White group as evaluated by the

White group's earnings equation. The unexplained component represents the part of the earnings differential captured by differences in the intercepts (i.e. constant) and differences in the estimated coefficients (i.e. returns to observable characteristics) of the two earnings equations. The latter part of the unexplained component measures how the White earnings equation would value the average characteristics of the self-employed Black group and how the self-employed Black group actually values them. The unexplained component is considered as an indicator of the presence of discrimination (Blinder, 1973; Oaxaca, 1973; Cotton, 1988).

The results of earnings equation estimations and the decomposition of the Black-White earnings differential are presented in Chapter Five. Chapter Four tracks changes in the extent and composition of the self-employed over the period 2000 to 2006, and examines the average characteristics of the self-employed and the earnings distribution at one point in time, 2004.

Chapter Four: Describing self-employment in South Africa, 2000-2006

In this chapter I provide a descriptive analysis of self-employment in South Africa. Section 4.1 addresses the first specific aim of the dissertation by analysing trends in self-employment in South Africa over the period 2000 to 2006 and exploring changes in the extent and composition of the self-employed and their earnings. Section 4.2 focuses on the second specific aim of the dissertation by examining cross-sectional descriptive statistics of the average characteristics of the self-employed and their earnings distribution, for the year 2004.

4.1 Analysis of the trends in self-employment in South Africa, 2000-2006

4.1.1 Trends in self-employment

In South Africa, self-employment is a component of the overall labour market and thus it is necessary to examine trends in self-employment in light of overall labour market trends. Table 1 describes how the South African labour force has grown over the period. The strict labour force has grown by 917 000 individuals at a rate of 0.94 percent per annum and the broad labour force has grown by approximately 1.9 million individuals at a rate of 1.7 percent per annum. The growth of the labour force may be a result of immigration, the natural growth of the working-age population and increased labour force participation (e.g. increased female labour force participation[14]).

[14] Studies by Kingdon & Knight (2005), Oosthuizen (2006), Casale & Posel (2002) and Barker (2003) suggest that there has been an increase in female labour force participation as well as an increase in the share of females in the labour force since 1995.

In comparison to previous years, the expansion of the labour force has slowed. Kingdon & Knight (2007) report an increase in the labour force in excess of four percent per annum (both strict and broad) during the period 1995 to 2003. However, they also detect a slowing of labour force growth in the period 2000 to 2003, where the broad and narrow labour force grew at 0.8 and 2.6 percent per annum, respectively (in line with slower labour force growth reported in Table 1). They suggest that the slowing growth of the labour force may be due to the effect of HIV/AIDS, and worker discouragement in the face of high unemployment (i.e. individuals stop seeking work or even aspiring to it).

Table 1: Summary of the South African labour market, 2000-2006

	LFS 2000:2	LFS 2002:2	LFS 2004:2	LFS 2006:2	Change (2000-2006) (000)	Change (2000-2006) (% p.a.)
Strict labour force (employed + searching unemployed)						
Total labour force	16,293	16,288	15,781	17,210	917	0.94
	(95)	(92)	(323)	(2,205)		
Total unemployed	4,370	5,064	4,216	4,543	173	0.57
	(48)	(53)	(127)	(616)		
Unemployment rate (%)	26.8	31.1	26.7	26.4	-0.4	-0.25
	(0.3)	(0.3)	(0.6)	(0.5)		
Broad labour force (employed + searching + non-searching unemployed)						
Total labour force	18,655	19,594	19,870	20,560	1905	1.70
	(97)	(94)	(370)	(2,742)		
Total unemployed	6,372	8,370	8,305	7,894	1522	3.98
	(58)	(64)	(186)	(1,153)		
Unemployment rate (%)	36.1	42.7	41.8	38.4	2.3	1.06
	(0.3)	(0.3)	(0.6)	(0.7)		
Employment						
Formal sector wage employment	7,674	7,689	7,927	8,560	886	1.93
	(69)	(62)	(200)	(987)		
Informal sector wage employment	1,592	1,426	1,497	1,592	0	0.00
	(32)	(30)	(51)	(235)		
Total wage employment	9,266	9,115	9,424	10,152	886	1.59
	(70)	(62)	(221)	(1,214)		
Formal sector self-employment	572	573	580	658	86	2.51
	(25)	(22)	(43)	(95)		
Informal sector self-employment	1,909	1,480	1513	1,818	-91	-0.80
	(34)	(36)	(52)	(299)		
Total self-employment	2,481	2,053	2,094	2,476	-5	-0.03
	(41)	(41)	(67)	(383)		
Total employment	11,747	11,168	11,518	12,629	882	1.25
Self-employment as a percent of total employment (%)	21.1	18.4	18.2	19.6		
	(0.3)	(0.3)	(0.5)	(0.7)		
Formal sector self-employment as a percent of total self-employment (%)	23.0	27.9	27.7	26.6		
	(0.8)	(0.9)	(1.7)	(1.7)		

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Counts are in thousands and data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for all labour force participants aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Searching unemployed are defined as those who are willing to accept employment and have actively searched for employment in the four weeks prior to the interview.

Table 1 also describes how formal sector self-employment grew by 86 000 jobs at a rate of 2.51 percent per annum. However this growth was from a relatively low base when compared to self-employment in the informal sector. The rise of self-employment in the formal sector was offset by 91 000 self-employed jobs being lost in the informal sector of the economy, and thus total self-employment fell by approximately 5 000 jobs over the period. Furthermore, informal sector self-employment appears to be a volatile source of employment, shedding approximately 429 000 jobs from 2000 to 2002 and then increasing by approximately 338 000 jobs from 2002 to 2006. This is interesting given that informal sector employment (in particular informal self-employment and subsistence farming) played a large part in the "two million jobs" created in the South African economy from 1995 to 2003 (Casale, Muller & Posel, 2004). This suggests that the earlier (1995 to 2003) growth documented in employment may reflect changes in the survey instrument and how comprehensively information on employment, and particularly more marginal kinds of employment, was captured.

Compared to wage employment, self-employment is a more minor source of employment in the economy. Self-employment accounts for roughly a fifth of total employment in the economy and this contribution has declined by 1.5 percentage points over the period. Despite growth in self-employment occurring in the formal sector the relative contribution of formal sector self-employment (approximately 26.6 percent in 2006) to total self-employment remains less than that of informal sector self-employment (approximately 73.4 percent in 2006). Nonetheless, the relative contribution of formal sector self-employment to total self-employment has increased by 3.6 percentage points over the period.

Table 2 investigates changes in self-employment by sector and industry over the period 2000 to 2006. In the formal sector the main employment industries are the agriculture, manufacturing, wholesale/retail trade, financial and community/social services industries, with the wholesale/retail trade industry being the largest source of self-employment in the formal sector. The majority of the increase in formal self-employment occurred in the latter four industries, where 22 000, 35 000, 30 000 and 13 000 jobs were created, respectively. The manufacturing

and financial industries grew the fastest (7.67 and 6.49 percent per annum from relatively high bases). The remaining industries all experienced growth with only the agricultural, mining and private household industries experiencing losses in self-employment. However, only the formal sector agricultural industry experienced relatively significant losses in self-employment over the period (19 000 jobs).

Table 2: Changes in self-employment by sector and industry, 2000-2006

	LFS 2000:2	LFS 2002:2	LFS 2004:2	LFS 2006:2	Change (2000-2006) (000)	Change (2000-2006) (% p.a.)
Formal sector						
Agriculture	85	73	54	66	-19	-3.73
	(7.6)	(6)	(7)	(18)		
Mining	2	3	0,078	0,1	-1.9	-15.83
	(1)	(1)	(0.078)	(0.1)		
Manufacturing	41	60	61	63	22	8.94
	(6)	(7)	(11)	(15)		
Electricity	0,6	0,3	0,4	2	1.4	38.89
	(0.6)	(0.3)	(0.4)	(2)		
Construction	43	42	45	46	3	1.16
	(6)	(8)	(8)	(10)		
Wholesale/retail trade	221	182	193	256	35	2.64
	(16)	(12)	(20)	(49)		
Transport	49	50	44	55	6	2.04
	(9)	(6)	(8)	(10)		
Financial	66	102	107	96	30	7.58
	(9)	(9)	(18)	(19)		
Community/social services	60	60	93	73	13	3.61
	(9)	(8)	(12)	(17)		
Private households	2	0	0	0	-2	-16.67
	(1)					
Total	571	573	578	658	87	2.54
	(24)	(20)	(42)	(94)		
Informal sector						
Agriculture	825	364	292	357	-468	-9.45
	(19)	(14)	(23)	(91)		
Mining	0	0,7	0	0	0	0.00
	(0)	(0.5)				
Manufacturing	153	141	163	164	11	1.20
	(9)	(10)	(12)	(28)		
Electricity	0,4	0	0,2	1	0.6	25.00
	(0.4)		(0.2)	(1)		
Construction	86	117	141	188	102	19.77
	(7)	(8)	(14)	(36)		
Wholesale/retail trade	704	667	737	881	177	4.19
	(21)	(19)	(34)	(125)		
Transport	31	35	44	48	17	9.14
	(4)	(5)	(6)	(9)		
Financial	17	48	40	46	29	28.43
	(4)	(19)	(6)	(11)		
Community/social services	78	104	93	132	54	11.54
	(8)	(10)	(12)	(22)		
Private households	10	0,4	2	0	-10	-16.67
	(2)	(0.4)	(2)			
Total	1906	1,479	1,513	1,818	-88	0.77
	(25)		(48)	(298)		

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Counts are in thousands and data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. The formal/informal definition is based upon the registration of enterprise criterion.

Similarly, the majority of the decline in informal sector self-employment occurred in the agricultural industry where 468 000 jobs were lost (8.10 percent decline per annum from a large base). The major industries with respect to self-employment in the informal sector are agriculture, manufacturing, construction, wholesale/retail trade and community/social services. Significant growth, from a high base, occurred in the latter four industries where 11 000, 102 000, 177 000 and 54 000 jobs were created, respectively. A rise in informal sector self-employment also occurred in the electricity, transport, financial and private household industries, although from a low base. However, the growth in self-employment across these industries was offset by the large decline in informal sector agricultural self-employment.

Within self-employment, there are large racial differences in the distribution of self-employment across the formal and informal sectors. Table 3 shows that Whites are over-represented in formal sector self-employment. Although Whites accounted for 15.7 percent of total employment in 2006, they represented 55.4 percent of the self-employed in the formal sector. Table 3 also describes changes in self-employment by sector and race from 2000 to 2006. Over this period, the largest growth in formal sector employment, in absolute terms, was among Whites who accounted for approximately two-thirds (translates into 58 000 jobs) of self-employment growth in this sector. The relative change in formal sector self-employment was higher among Indians and Coloureds, but from a lower base.

The picture is completely different with self-employment in the informal sector of the economy. Table 3 shows that Blacks are over-represented in informal sector self-employment. While Blacks accounted for 69.6 percent of total employment in 2006, they represented the majority (90.3 percent) of the self-employed in the informal sector. It is evident that job losses among the self-employed in the informal sector occurred among self-employed Blacks who lost 128 000 jobs (from a large base) at a rate of 1.04 percent per annum over the period. Self-employed Coloureds, Indians and Whites in the informal sector all experienced employment growth (all from low bases), with growth being highest among Coloureds in both absolute and relative terms.

Table 3: Changes in self-employment by sector and race, 2000-2006

	LFS 2000:2	LFS 2002:2	LFS 2004:2	LFS 2006:2	Change (2000-2006) (000)	Change (2000-2006) (% p.a.)
			Formal sector			
Black	208	139	149	215	7	0.56
	(12)	(10)	(14)	(35)		
	36.5	*24.3*	*25.7*	*32.7*		
	(2.0)	*(1.6)*	*(2.6)*	*(2.6)*		
Coloured	21	33	32	30	9	7.14
	(3)	(5)	(7)	(7)		
	3.6	*5.8*	*5.5*	*4.6*		
	(0.6)	*(0.9)*	*(1.2)*	*(0.9)*		
Indian	35	47	40	47	12	5.71
	(4)	(8)	(7)	(8)		
	6.2	*8.2*	*7.0*	*7.2*		
	(0.8)	*(1.4)*	*(1.3)*	*(1.4)*		
White	306	353	358	364	58	3.16
	(20)	(20)	(39)	(60)		
	53.7	*61.6*	*61.8*	*55.4*		
	(2.1)	*(1.9)*	*(3.2)*	*(3.1)*		
Total	570	572	580	656	86	2.51
	(24)	(20)	(42)	(94)		
	100	*100*	*100*	*100*		
			Informal sector			
Black	1766	1,336	1,369	1,638	-128	-1.21
	(22)	(23)	(47)	(279)		
	92.5	*90.4*	*91.1*	*90.3*		
	(0.7)	*(1.3)*	*(0.9)*	*(1.2)*		
Coloured	56	47	43	81	25	7.44
	(5)	(5)	(6)	(16)		
	3.0	*3.2*	*2.9*	*4.5*		
	(0.3)	*(0.3)*	*(0.4)*	*(0.8)*		
Indian	23	16	25	31	8	5.80
	(10)	(3)	(6)	(8)		
	1.2	*1.1*	*1.7*	*1.7*		
	(0.5)	*(0.2)*	*(0.4)*	*(0.4)*		
White	63	79	66	64	1	0.26
	(9)	(19)	(10)	(17)		
	3.3	*5.4*	*4.4*	*3.5*		
	(0.5)	*(1.2)*	*(0.6)*	*(0.8)*		
Total	1909	1,478	1,502	1,814	-95	0.83
	(25)	(29)	(47)	(298)		
	100	*100*	*100*	*100*		

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Counts are in thousands and data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. The formal/informal definition is based upon the registration of enterprise criterion.

4.1.2 Trends in the earnings of the self-employed

It is evident in Table 4 that within the labour market the average wages and average working hours of the wage employed are different to the average earnings and average working hours of

the self-employed[17]. In 2000, the wage employed were paid average monthly wages of R2 730.47 or average hourly wages of R14.61 per hour, working an average of 46 hours per week. Conversely, by working an average of 38 hours per week, the self-employed generated average monthly and average hourly earnings of R2 169.54 per month and R12.03 per hour, respectively.

Table 4: Real earnings (2000 prices) for the self-employed, 2000-2006

	LFS 2000:2	LFS 2002:2	LFS 2004:2	LFS 2006:2	Change (2000-2006) (000)	Change (2000-2006) (% p.a.)
Wage/salary employed						
Average real monthly earnings	2730.47	2695.22	2808.11	2939.86	209.39	1.28
	(57.01)	(71.17)	(80.78)	(133.45)		
Average weekly hours worked	46.26	46.57	45.02	44.80	-1.46	-0.53
	(0.14)	(0.11)	(0.15)	(0.14)		
Average real hourly earnings	14.61	14.25	14.98	16.01	1.40	1.60
	(0.30)	(0.41)	(0.41)	(0.74)		
Self-employed						
Average real monthly earnings	2169.54	2603.73	2939.76	2871.55	702.01	5.39
	(106.91)	(106.40)	(186.91)	(243.70)		
Average weekly hours worked	38.55	43.88	43.74	42.18	3.63	1.57
	(0.40)	(0.43)	(0.55)	(0.69)		
Average real hourly earnings	12.03	15.73	15.60	15.79	3.76	5.21
	(0.54)	(2.31)	(0.96)	(1.30)		

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Earnings estimates include imputed values for zero and missing reported earnings. 5. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa.

Table 4 also describes changes in the average earnings of these two groups of the employed for the period 2000 to 2006. Over the period the average monthly wages and average hourly wages for the wage employed have increased to R2 939.86 per month and R16.01 per hour, respectively. Conversely, the self-employed have experienced substantially greater earnings growth, both in absolute and relative terms, with their average monthly and average hourly earnings growing to R2 871.55 per month and R15.79 per hour, respectively. Thus the earnings gap between the wage employed and the self-employed has fallen from R560.93 per month (R2.58 per hour) to R68 per month (R0.22 per hour).

The decrease in the real average earnings gap between employees and the self-employed may be a result of employees working, on average, 1.46 hours less per week and the self-employed

[17] For additional data on the earnings of the self-employed over the period 2000 to 2006, see appendix Table A1.

working, on average, 3.63 hours more per week over the period. The greater number of average hours worked per week may have translated into increased earnings for the self-employed. On the contrary, the drop in average hours worked per week may have translated into slower average earnings growth among employees.

The self-employed have experienced an increase in average earnings over the period and Table 5 describes how average hourly earnings among the self-employed differ across sector and race. In 2006 self-employed in the formal sector generated average real hourly earnings of R40.70 per hour. Table 5 also describes changes in average real hourly earnings among the self-employed from 2000 to 2006. Over the period, the average hourly earnings of the self-employed in the formal sector have grown by almost four percent per annum. The results also show that this average hourly earnings growth in the formal sector has been enjoyed among the self-employed across all race groups. Over the period, the largest average hourly earnings growth in both absolute and relative terms was among self-employed Indians. Self-employed Whites also experienced substantial average hourly earnings growth but from a higher base than that of Indians. The average hourly earnings growth experienced by Coloureds and Blacks was however from a relatively low base.

In 2006 self-employed in the informal sector of the economy generated average real hourly earnings of R6.82 per hour. Although average hourly earnings among the informally self-employed rose by almost four percent per annum, the absolute average hourly earnings growth was a mere R1.29 per hour over the period. The increase in average earnings in the informal sector was highest, in both absolute and relative terms, among self-employed Whites (from a high base). Informally self-employed Blacks also experienced an increase in average hourly earnings but from a low base. However, informally self-employed Coloureds and Indians both experienced a decline in average hourly earnings over the period.

In comparing the average real hourly earnings of the self-employed in the formal and informal sectors of the economy it is immediately evident that average real hourly earnings are considerably higher for the self-employed in the formal sector. In 2006 the average real hourly earnings of the formally self-employed were roughly six times greater than the average real hourly earning of the informally self-employed. Table 5 also indicates that this formal sector earnings premium is consistent across race groups.

Table 5: Real hourly earnings (2000 prices) for the self-employed by race and sector, 2000-2006

	LFS 2000:2	LFS 2002:2	LFS 2004:2	LFS 2006:2	Change (2000-2006) (000)	Change (2000-2006) (% p.a.)
Real hourly earnings of the self-employed in the formal sector						
Total	33.27	41.69	38.87	40.70	7.43	3.72
	(2.03)	(8.18)	(1.96)	(2.67)		
Black	17.60	23.97	22.66	22.71	5.11	4.84
	(2.62)	(3.69)	(2.93)	(3.32)		
Coloured	25.37	22.01	29.53	29.66	4.29	2.82
	(3.85)	(2.88)	(4.48)	(5.98)		
Indian	24.32	27.71	36.59	34.77	10.45	7.16
	(2.56)	(2.13)	(5.63)	(4.88)		
White	45.28	52.41	46.78	53.15	7.87	2.90
	(3.23)	(13.21)	(2.32)	(3.36)		
Real hourly earnings of the self-employed in the informal sector						
Total	5.53	5.73	6.55	6.82	1.29	3.89
	(0.22)	(0.38)	(0.40)	(0.53)		
Black	4.65	4.57	5.45	5.64	0.99	3.55
	(0.19)	0.34)	(0.36)	(0.46)		
Coloured	11.26	8.49	8.71	10.63	-0.63	-0.93
	(1.65)	(1.01)	(1.03)	(1.76)		
Indian	12.82	16.86	12.96	11.36	-1.46	-1.90
	(2.14)	(3.29)	(1.90)	(2.93)		
White	22.41	21.35	25.80	30.20	7.79	5.79
	(2.36)	(1.80)	(3.78)	(7.55)		

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Earnings estimates include imputed values for zero and missing reported earnings. 5. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 6. The formal/informal definition is based upon the registration of enterprise criterion.

More importantly, Table 5 highlights the persistent racial differences in returns to self-employment in South Africa. For instance, when looking at the formal sector of the economy it is clear that a racial hierarchy in earnings exists among the self-employed in South Africa, with Whites earning the most and Blacks the least. Over the period, average hourly earnings for Whites in self-employment were between R10 and R30 more than the average hourly earnings for Coloureds and Indians, and they were more than double the average hourly earnings for Blacks.

As is the case with the formal sector, a similar pattern in earnings exists among the self-employed in the informal sector of the economy. In 2006, the average hourly earnings of self-employed Whites were roughly three times the average hourly earnings of self-employed Coloureds and Indians and roughly six times the average hourly earnings of self-employed Blacks.

Thus the data suggest clear divisions between formal and informal sector self-employment, where average hourly earnings are considerably higher in formal sector self-employment. The data also reveal that self-employed Whites are over-represented in "high-earning" formal sector self-employment. Formal sector self-employment has grown over the period and this growth has been driven by increases in self-employment among Whites. With self-employed Whites being disproportionally represented in high earning formal sector self-employment the racial earnings hierarchy has not been eroded over the period.

4.2 Cross-sectional descriptive analysis of the self-employed in South Africa, 2004

4.2.1 Characteristics of the self-employed

From the above analysis of trends in self-employment in South Africa it appears that earnings levels in self-employment are correlated with race. However as mentioned in Chapter Two, there are a number of other possible factors that may be linked with returns to self-employment. In Table 6, I compare the mean characteristics of self-employed individuals across the four main race categories in South Africa for the year 2004.

As with the results presented in the trend analysis, a racial hierarchy in earnings is evident. The average real hourly earnings of self-employed Whites (R43.51 per hour) are greater than the

average real hourly earnings of self-employed Indians (R28.82 per hour), which are greater than the average real hourly earnings of self-employed Coloureds (R17.57), which are greater than the average real hourly earnings of self-employed Blacks (R7.27). Race is clearly correlated with returns to self-employment. However, Table 6 also describes clear differences in the average observable characteristics of these self-employed individuals.

Self-employed Whites, on average, are older and more educated. They are more likely to be married, male, and working in the formal sector of the economy in a skills-intensive occupation that employs other individuals, and with access to formal credit. These characteristics are typically associated with higher returns and success in self-employment. In contrast, self-employed Blacks, on average, are younger and have considerably lower levels of educational attainment than others in self-employment. They are also less likely to be married, male, and to live in a metropolitan area They are more likely to operate on their own account in an unskilled occupation in the informal sector of the economy and have access to informal credit (although fairly limited). These characteristics are typically associated with lower returns to self-employment. In terms of average characteristics and its association with returns to self-employment, self-employed Coloureds and Indians fall, on average, between the two groups discussed above. Thus this section suggests that the average observable characteristics of the self-employed differ by race and that these differences could possibly impact on returns to self-employment.

Table 6: Characteristics of self-employed workers by race, 2004

	Black (n = 3328)	Coloured (n = 199)	Indian (n = 127)	White (n = 755)
Average hourly earnings	7.27	17.57	28.82	43.51
	(0.50)	(2.19)	(4.46)	(2.21)
Average hours worked per week	42.36	41.89	51.74	47.56
	(0.72)	(1.83)	(1.72)	(0.73)
Age	39.77	40.80	41.42	43.86
	(0.31)	(1.26)	(1.35)	(0.81)
Literacy	0.85	0.99	1.00	1.00
	(0.01)	(0.01)	(0.00)	(0.00)
Years of schooling	7.43	9.90	11.18	12.92
	(0.11)	(0.29)	(0.32)	(0.18)
No primary education	0.35	0.08	0.04	0.01
	(0.01)	(0.02)	(0.03)	(0.01)
Primary education	0.09	0.06	0.07	0.00
	(0.01)	(0.02)	(0.03)	(0.00)
Incomplete secondary education	0.36	0.45	0.21	0.09
	(0.01)	(0.06)	(0.05)	(0.01)
Matric	0.14	0.34	0.54	0.41
	(0.01)	(0.07)	(0.05)	(0.03)
Higher education	0.04	0.05	0.14	0.47
	(0.00)	(0.02)	(0.04)	(0.04)
Female	0.48	0.36	0.16	0.31
	(0.01)	(0.05)	(0.03)	(0.02)
Married	0.41	0.65	0.85	0.77
	(0.01)	(0.06)	(0.05)	(0.03)
Cohabit	0.14	0.06	0.04	0.08
	(0.01)	(0.03)	(0.02)	(0.03)
Never married	0.32	0.23	0.06	0.10
	(0.01)	(0.05)	(0.02)	(0.02)
Children under 7 years of age	0.75	0.67	0.36	0.39
	(0.03)	(0.11)	(0.08)	(0.04)
Children from 7 to 14 years of age	0.94	0.70	0.58	0.36
	(0.03)	(0.10)	(0.16)	(0.05)
Formal sector employment	0.10	0.43	0.61	0.84
	(0.01)	(0.06)	(0.07)	(0.02)
Not own-account self-employment	0.33	0.47	0.76	0.78
	(0.01)	(0.06)	(0.05)	(0.03)
Skilled occupations	0.11	0.34	0.58	0.71
	(0.01)	(0.07)	(0.06)	(0.03)
Semi-skilled occupations	0.54	0.52	0.28	0.26
	(0.01)	(0.06)	(0.06)	(0.03)
Living in a metropolitan area	0.29	0.64	0.61	0.57
	(0.02)	(0.05)	(0.07)	(0.05)
Access to formal credit	0.03	0.19	0.10	0.84
	(0.00)	(0.05)	(0.04)	(0.02)
Access to informal credit	0.22	0.08	0.09	0.05
	(0.01)	(0.03)	(0.04)	(0.01)

Source: Labour Force Survey (LFS) 2004:2

Notes: 1. Standard errors in parentheses. 2. Data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Earning estimates include imputed earnings for zero and missing reported earnings. 5. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 6. The formal/informal definition is based upon the registration of enterprise criterion. 7. Skilled occupations include: legislative/managerial, professional, technical/associate professional occupations. Semi-skilled occupations include: clerk, service/sales, skilled agriculture/fishery, craft and related trades and plant/machine operators. Unskilled occupations include: elementary occupations. 8. Sample size represented by n = ( ).

4.2.2 Distribution across self-employment, hours worked and earnings of the self-employed

Returns to self-employment are also affected by the type of employment and the type of occupation in which self-employed individuals operate. Table 7 disaggregates the self-employed by race, sector and, whether they are involved in agricultural or non-agricultural activities. The self-employed in non-agricultural and agricultural activities are further disaggregated into own account (i.e. not employing anyone else) and not own account workers (i.e. self-employed and employing others). It is expected that returns to the self-employed who do not work on their own account (i.e. employ others) are higher than to the self-employed who work on their own account, and particularly in the informal sector, where own account self-employment could be associated with survivalist or subsistence activities.

The data in Table 7 show that whereas Blacks are concentrated particularly in non-agricultural own account self-employment in the informal sector, Whites are concentrated in formal sector self-employment which is not own account. The distribution across Coloureds and Indians is less skewed, although the majority of Indians in self-employment are also employers in the formal sector, and the modal type of self-employment for Coloureds is in own account self-employment in the informal sector.

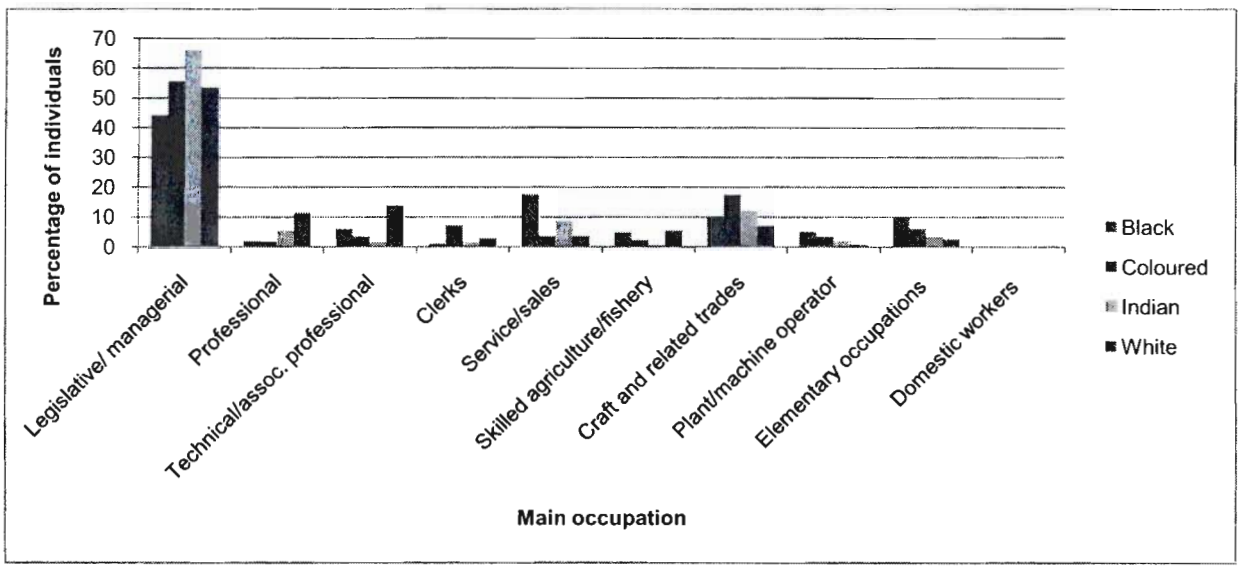
Table 7 also describes average real hourly earnings by race, across sector and type of self-employment. The data reveal that there is a large distribution in average hourly earnings among the self-employed, ranging from R2.62 per hour to R75.61 per hour. It is evident that earnings are typically far higher in non-agricultural self-employment than in self-employment in agriculture[18]. Furthermore, among those in non-agricultural self-employment, earnings are typically far larger among not own account workers and highest among employers in the formal

[18] However, Coloureds in agricultural not own account self-employment and Whites in agricultural own account self-employment generate the highest average hourly earnings in Table 7. However, after further inspection of the data, outliers are present in these two samples.

sector of the economy. A similar pattern is evident among the self-employed in agriculture. Thus underlying the racial differences in earnings is the distribution by type and sector of self-employment in South Africa.

Figure 2 describes the distribution of the self-employed by race and type of occupation in the formal sector of the economy. A large proportion of the formally self-employed, across all race groups, are distributed in skilled occupations[19] (in particular, legislative and managerial occupations). The results reveal that three-quarters of self-employed Whites in the formal sector are found in skilled occupations (52, 11 and 13 percent found in managerial, professional and technical occupations, respectively). Similarly, 70 percent of self-employed Indians in the formal sector are distributed in skilled occupations such as managerial and professional occupations (65 and 5 percent respectively) and a further 20 percent are located in semi-skilled occupations such as sales and craft occupations (8 and 12 percent respectively).

Figure 2: Distribution of self-employment by occupation and race in the formal sector, 2004



Source: Labour Force Survey (LFS) 2004:2
Notes: 1. Data are weighted (using the new weights released by Statistics South Africa in 2006). 2. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 3. The formal/informal definition is based upon the registration of enterprise criterion.

[19] Skilled occupations include: legislative/managerial, professional, technical/associate professional occupations. Semi-skilled occupations include: clerk, service/sales, skilled agriculture/fishery, craft and related trades and plant/machine operators. Unskilled occupations include: elementary occupations.

Table 7: Distribution of self-employment by race and employment type, hourly earnings and hours worked, 2004

	Black				Coloured				Indian				White			
	Distribution of self-employment		Average hourly earnings & weekly hours worked		Distribution of self-employment		Average hourly earnings & weekly hours worked		Distribution of self-employment		Average hourly earnings & weekly hours worked		Distribution of self-employment		Average hourly earnings & weekly hours worked	
	N	%	Earnings	Hours	N	%	Earnings	Hours	N	%	Earnings	Hours	N	%	Earnings	Hours
Formal																
Non-agricultural, self-employed not own account	92 (11)	6.07	26.07 (3.42)	53.55 (1.70)	25 (6)	33.33	30.42 (4.88)	47.05 (2.80)	36 (7)	54.55	38.55 (6.05)	53.79 (1.85)	259 (34)	61.08	46.82 (2.46)	49.01 (1.01)
Non-agricultural, self-employed own account	47 (7)	3.10	18.44 (5.82)	57.10 (2.84)	6 (4)	8.00	18.62 (7.81)	48.84 (6.92)	4 (2)	6.06	21.44 (3.45)	41.97 (4.98)	56 (12)	13.21	48.34 (6.03)	42.92 (1.76)
Agricultural, self-employed not own account	8 (3)	0.53	10.68 (3.65)	31.99 (9.44)	1 (0.5)	1.33	61.65 (17.09)	32.75 (7.88)	0.5 (0.3)	0.76	14.50 (0.77)	45.34 (6.92)	42 (6)	9.91	43.71 (5.58)	53.95 (1.73)
Agricultural, self-employed own account	1 (1)	0.07	9.61 (6.63)	40.23 (7.18)	0.006 (0.006)	0.01	11.53 (0.00)	12 (0.00)	0.2 (0.2)	0.30	13.83 (0.00)	40 (0.00)	1 (0.3)	0.24	75.61 (30.47)	44.98 (2.17)
Informal																
Non-agricultural, self-employed not own account	280 (20)	18.47	9.22 (1.35)	48.71 (1.60)	9 (2)	12.00	12.13 (2.52)	43.03 (2.43)	13 (4)	19.70	13.87 (3.81)	56.46 (3.29)	28 (6)	6.60	22.20 (3.14)	43.22 (2.03)
Non-agricultural, self-employed own account	803 (34)	52.97	5.10 (0.36)	44.27 (0.76)	31 (5)	41.33	8.18 (1.18)	38.83 (2.56)	12 (4)	18.18	12.21 (2.53)	46.21 (4.18)	35 (7)	8.25	29.51 (6.42)	40.78 (2.69)
Agricultural, self-employed not own account	112 (14)	7.39	2.62 (0.16)	26.23 (2.28)	0.3 (0.2)	0.40	3.01 (0.09)	22.83 (9.16)	0 (0.0)	0.00	0 (0.00)	0 (0.00)	2 (0.8)	0.47	20.19 (5.10)	47.19 (2.55)
Agricultural, self-employed own account	173 (15)	11.41	2.82 (0.23)	24.31 (1.29)	3 (1)	4.00	3.84 (0.29)	19.16 (5.90)	0.3 (0.3)	0.45	4.51 (0.00)	15 (0.00)	1 (0.7)	0.24	8.94 (1.82)	18.77 (9.02)
Total	1516	100.00			75.3	100.00			65	100.00			424	100.00		

Source: Labour Force Survey (LFS) 2004:2

Notes: 1. Standard errors in parentheses. 2. Counts are in thousands for number of self-employed (N). 3. Data are weighted (using the new weights released by Statistics South Africa in 2006). 4. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 5. Earning estimates include imputed earnings. 6. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 7. The formal/informal definition is based upon the registration of enterprise criterio

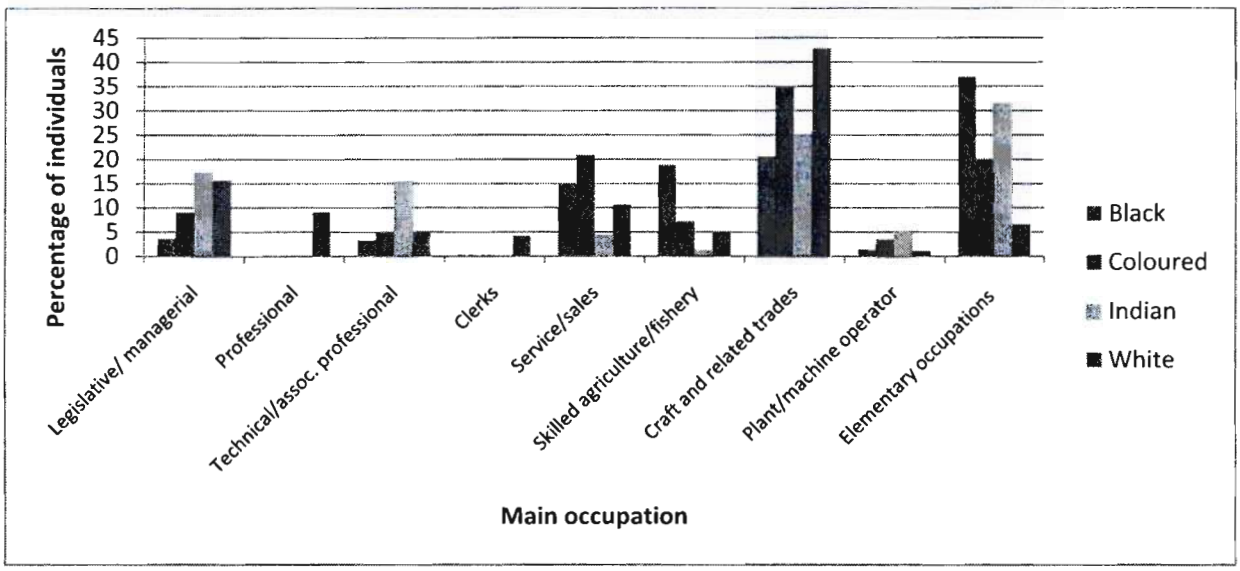
Despite a large percentage of formally self-employed Blacks and Coloureds working in skilled managerial occupations (44 and 55 percent respectively), the remainder are found in semi-skilled occupations. Nearly half of the formally self-employed Blacks are distributed across semi-skilled and unskilled occupations such as sales, crafts and elementary occupations (18, 10 and 10 percent respectively). Similarly, the remaining 40 percent of formally self-employed Coloureds are distributed across the spectrum of semi-skilled and unskilled occupations.

Similar to Figure 2, Figure 3 describes the distribution of the self-employed across the informal sector of the economy where a shifting of the distribution towards semi-skilled and unskilled occupations is evident. Over a third of the informally self-employed Blacks operate unskilled elementary occupations while a further 54 percent are distributed across semi-skilled occupations such as sales, skilled agricultural and fishery and craft occupations (15, 18 and 21 percent respectively). A fifth of informally self-employed Coloureds are located in unskilled elementary occupations and an additional 56 percent are found in semi-skilled occupations such as sales and crafts (21 and 35 percent respectively). In terms of skill levels informally self-employed Indians are more evenly spread across the occupational categories with nearly a third located in both skilled and unskilled occupations and a quarter located in semi-skilled occupations. Informally self-employed Whites are spread more towards skilled and semi-skilled occupational categories with thirty percent of them being distributed across skilled occupations and a further 53 percent being distributed across semi-skilled occupations (43 percent being founds in craft and related trade occupations).

Given that approximately 84 percent of self-employed Whites are located in the formal sector of the economy and given the results from Figure 2 and Figure 3, one can conclude that self-employed Whites are found predominantly in high skilled occupations in the formal sector of the economy. Conversely, with approximately 90 percent of self-employed Blacks being located in the informal sector of the economy and the results from Figure 2 and Figure 3, self-employed Blacks are predominantly found in semi-skilled and unskilled occupations in the informal sector

of the economy. Table 8 looks even more closely at how average earnings vary by occupational category, across sector of employment and by race.

Figure 3: Distribution of self-employment by occupation and race in the informal sector, 2004



Source: Labour Force Survey (LFS) 2004:2
Notes: 1. Data are weighted (using the new weights released by Statistics South Africa in 2006). 2. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 3. The formal/informal definition is based upon the registration of enterprise criterion.

The results from Table 8 suggest that a hierarchy in earnings exists between occupations and that these earnings differences across occupations are closely correlated with the skill levels associated with each occupation. The results show that typically, skilled occupations such as managerial, professional and technical occupations generate higher earnings than semi-skilled occupations such as clerk, sales, skilled agriculture and fishery, craft and machine/plant operating occupations (except for formally self-employed Coloureds who generate very high earnings in semi-skilled occupations). Semi-skilled occupations tend to generate higher earnings than unskilled elementary occupations (except for formally self-employed Whites who generate

exceptionally high earnings in unskilled elementary occupations[20]). These results are consistent across both the formal and informal sectors of the economy.

In addition to the earnings differentials across occupational categories that are closely correlated with differing skill levels between occupations, there is the presence of an earning differential within occupations that is closely correlated with race. This racial earnings differential is particularly evident in skilled occupations in the formal sector of the economy where self-employed Whites earn more than self-employed Indians, Coloureds and Blacks (in order of earnings). Semi-skilled occupational categories in the formal sector appear to be an exception to the norm with self-employed Coloureds having similar if not greater returns than self-employed Whites[21]. Nonetheless, the established racial earnings hierarchy generally holds across semi-skilled occupations. Similarly, it is clear that the established earnings hierarchy also holds across unskilled occupations in the formal sector. Generally the racial earnings ladder holds across occupational categories and skill levels in the informal sector of the economy. What is particularly alarming is the fact that self-employed Blacks are predominantly found in the informal sector of the economy (90 percent, which translates into approximately 1.3 million individuals) and roughly a third of these individuals (half a million individuals) operate elementary occupations that generate real hourly earnings of R3.62. In comparison self-employed Whites are predominantly found in the formal sector of the economy (84 percent which translates into approximately 350 000 individuals) and roughly three-quarters of these individuals operate skilled occupations that generate, on average, hourly earnings of approximately R52.

[20] Although the standard deviation of 10.74 suggests that the very high earnings generated by self-employed Whites in elementary occupations are highly variable.

[21] The high average earnings generated by self-employed Coloureds in service/sales, skilled agriculture/fishery and plant/machine operator occupations in the formal sector are the result of small sample sizes and a few large outliers that are inflating these average hourly earnings estimates.

Table 8: Real hourly earnings (2000 prices) and weekly hours worked by race, sector and occupation, 2004

	Black		Coloured		Indian		White	
	Hourly earnings	Weekly hours worked	Hourly earnings	Weekly hours worked	Hourly earnings	Weekly hours worked	Hourly earnings	Weekly hours worked
Formal Sector								
Legislative/managerial	37.03	54.22	30.47	45.26	42.28	56.03	45.77	51.11
	(5.71)	(2.15)	(6.23)	(2.30)	(7.28)	(2.17)	(2.78)	(1.07)
Professionals	36.60	43.39	30.56	40.00	42.83	42.82	68.05	44.02
	(3.95)	(2.24)	(0.00)	(0.00)	(4.93)	(10.16)	(5.75)	(2.91)
Technical & associate professionals	19.78	43.91	12.46	35.01	31.29	56.00	43.80	44.34
	(8.18)	(4.57)	(2.45)	(3.06)	(0.00)	(0.00)	(6.06)	(2.05)
Clerks	19.78	43.91	40.80	39.63	18.44	40.00	31.51	40.87
	(8.18)	(4.57)	(12.50)	(2.82)	(0.00)	(0.00)	(4.09)	(3.03)
Service/sales	7.42	59.55	58.32	42.23	32.73	45.67	35.07	48.39
	(1.33)	(3.45)	(37.61)	(8.66)	(13.62)	(4.89)	(9.05)	(2.80)
Skilled agriculture & fishery	9.28	29.14	51.62	38.34	13.83	40.00	57.45	53.75
	(3.35)	(9.18)	(23.59)	(6.84)	(0.00)	(0.00)	(10.03)	(1.70)
Craft & related trades	12.84	49.22	17.03	57.91	17.22	44.02	30.11	45.92
	(2.75)	(3.67)	(3.95)	(4.55)	(44.02)	(1.42)	(3.37)	(2.08)
Plant/machine operator	14.08	65.71	59.03	31.25	23.63	48.00	30.96	44.74
	(3.93)	(5.69)	(27.30)	(8.66)	(0.00)	(0.00)	(4.27)	(4.19)
Elementary occupations	6.23	54.73	11.57	58.72	13.65	54.89	46.08	46.15
	(1.73)	(4.45)	(1.92)	(7.78)	(3.65)	(4.50)	(10.76)	(2.58)
Informal sector								
Legislative/managerial	18.63	46.58	18.38	41.57	16.81	51.22	40.01	39.95
	(6.49)	(2.42)	(4.56)	(3.22)	(10.78)	(5.53)	(13.81)	(4.32)
Professionals	8.69	42.38					42.34	45.45
	(4.08)	(1.60)					(13.70)	(7.51)
Technical & associate professionals	7.84	45.02	19.30	41.97	11.14	55.51	66.35	41.85
	(1.92)	(3.02)	(4.47)	(0.59)	(2.13)	(3.51)	(25.26)	(3.58)
Clerks	15.78	31.83	5.65	49.00			30.34	45.01
	(3.54)	(12.48)	(0.00)	(0.00)			(0.97)	(3.01)
Service/sales	7.75	53.70	5.92	49.03	5.38	55.89	24.79	39.70
	(1.21)	(2.27)	(1.35)	(6.12)	(0.99)	(5.53)	(3.23)	(5.69)
Skilled agriculture & fishery	2.78	24.13	3.75	19.56	4.51	15.00	23.64	32.75
	(0.17)	(1.29)	(0.28)	(5.51)	(0.00)	(0.00)	(8.94)	(6.06)
Craft & related trades	6.62	38.86	9.19	37.99	15.81	50.83	14.23	42.42
	(0.48)	(0.93)	(1.40)	(2.18)	(3.78)	(8.02)	(1.88)	(2.20)
Plant/machine operator	5.04	43.07	10.99	33.06	15.86	38.31	6.10	38.39
	(0.97)	(4.10)	(2.23)	(5.00)	(6.72)	(1.58)	(1.57)	(8.31)
Elementary occupations	3.62	45.29	5.35	32.94	10.41	51.85	15.99	42.34
	(0.22)	(0.91)	(1.23)	(4.05)	(2.44)	(5.37)	(3.73)	(3.81)

Source: Labour Force Survey (LFS) 2004:2

Notes: 1. Standard errors in parentheses. 2. Data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Earning estimates include imputed earnings for zero and missing reported earnings. 5. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 6. The formal/informal definition is based upon the registration of enterprise criterion.

4.2.3 Inequality among the self-employed

The descriptives above have described the distribution of the self-employed and how differences in observable characteristics are related to differences in the average returns to self-employment.

This section, with the use of Table 9 and Figure 4, describe the distribution of earnings among the self-employed. Table 9 describes inequality in the national (pooled) sample, and by race, using a number of different inequality measures (i.e. Gini coefficient; coefficient of variation[22]; income shares; quantile ratio[23]).

The inequality measures in Table 9 show consistently that inequality is higher among the self-employed than among the wage employed. For example the Gini coefficient for the self-employed and the wage employed are 0.70 and 0.56, respectively. Similarly, the quantile ratio for the self-employed (8.26) is greater than the quantile ratio for the wage employed (2.97).

Among the self-employed, inequality appears to be highest among the Blacks in self-employment, and lowest among Whites. The Gini coefficient and the Quantile ratio for Blacks in self-employment is 0.65 and 5.48, respectively. In contrast, the Gini coefficient and the Quantile ratio for Whites in self-employment are 0.46 and 1.52, respectively. The levels of inequality among Coloureds and Indians in self-employment are between the levels of inequality among Blacks and among Whites, with Coloureds having a more unequal distribution of earnings and Indians having a less unequal distribution of earnings.

The results also show that the Gini coefficient for the overall sample is larger than the Gini coefficient for each of the sub-samples by race. The Gini coefficient for the national sample is 0.70 while the Gini coefficients for the Black, Coloured, Indian and White samples are 0.65, 0.61, 0.50 and 0.46, respectively. This suggests that there is greater inequality across races than within race groups.

[22] The coefficient of variation is a statistical measure of inequality that avoids the insensitivity of mean absolute deviation by giving more weight to larger deviations from the mean (Ray, 1998). The coefficient of variation is the standard deviation divided by the mean, so that only relative earnings matter.

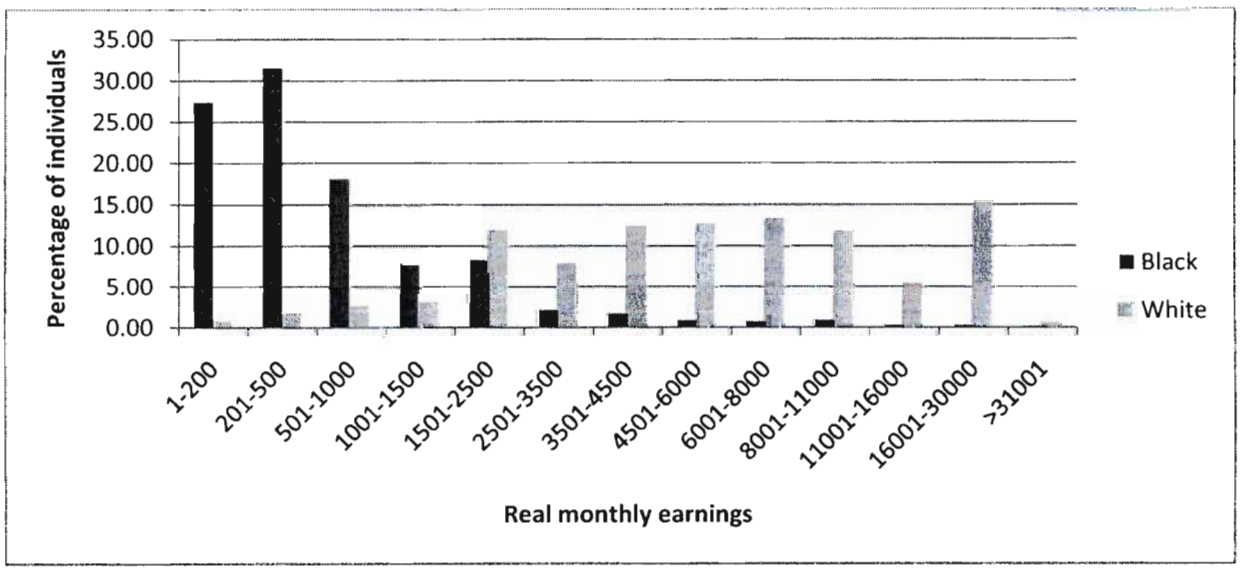
[23] The quantile ratio represents the ratio of the income share of the richest five percent to the poorest forty percent.

Table 9: Measures of inequality for the wage employed and the self-employed, 2004

	Gini coefficient	Coefficient of variation	Income share of the richest 5%	Income share of the poorest 40%	Quantile ratio
Wage employed					
Pooled	0.56	1.33	26.08	8.77	2.97
Black	0.54	1.34	24.51	9.99	2.45
Coloured	0.49	1.10	22.22	11.86	1.87
Indian	0.45	1.03	20.64	13.77	1.50
White	0.40	0.84	17.84	15.65	1.14
Self-employed					
Pooled	0.70	2.44	39.42	4.77	8.26
Black	0.65	2.74	43.31	7.90	5.48
Coloured	0.61	1.67	33.47	8.12	4.12
Indian	0.50	1.03	18.30	10.29	1.78
White	0.46	1.48	19.91	13.11	1.52

Source: Labour Force Survey (LFS) 2004:2
Notes: 1. Data are not weighted. 2. Real hourly earnings (2000 prices) including imputed, for zero and missing reported earnings values, are used. 2. Estimates are for self-employed individuals aged 15 to 65 years, who reported non-zero working hours of no more than 112 hours per week. 3. The pooled sample includes all the respective race groups. 4. The quantile ratio calculates the ratio between incomes received by the richest 5 percent of the sample to incomes received by the poorest 40 percent of the sample.

Figure 4: Earnings Distribution of the Self-employed, 2004



Source: Labour Force Survey (LFS) 2004:2
Notes: 1. Data are not weighted. 2. Earning estimates include imputed earnings for zero and missing reported earnings. 3. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 4. Estimates are for self-employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week.

The results depicted in Figure 4 provide a clear illustration of inequality between Blacks and Whites in self-employment. Figure 4 shows how a greater percentage of Blacks in self-employment are distributed in the lower real monthly earnings categories while a greater percentage of Whites in self-employment are distributed in the higher real monthly earnings categories.

The descriptive statistics presented in this Chapter show clear divisions between formal and informal sector self-employment with Whites being disproportionately represented in the high return formal sector and Blacks being disproportionately represented in the low return informal sector. The Chapter also shows clear differences in the average earnings of the four respective race groups and in particular, a large earnings differential between self-employed Whites and self-employed Blacks. The data also reveal that self-employed Whites, on average, are older, more educated, more likely to be married and more likely to reside in a metropolitan area than self-employed Blacks. They are also more likely to have access to formal credit, and to operate a skills intensive occupation in the formal sector that employs additional workers. The data also describes the degree of inequality between Blacks and Whites in self-employment with Whites distributed more densely across high income intervals and Blacks distributed more densely across low income intervals. The multivariate analysis to follow in Chapter Five allows one to investigate how much of the earnings differential between Blacks and Whites in self-employment remains once I have controlled for differences in measurable characteristics.

Chapter Five: Estimating earnings of the self-employed

The descriptive statistics presented in Chapter Four reveal the presence of substantial earnings differences in self-employment between Blacks and Whites in South Africa[24]. Chapter Five aims to address the main research question of what accounts for these differences in earnings. Section 5.1 probes the determinants of earnings in self-employment with the use of multivariate analysis in the form of estimated earnings equations. The analysis shows that after controlling for differences in observed characteristics, Whites still earn significantly more than Blacks in self-employment. Section 5.2 then decomposes this earnings differential in order to determine how much of the earnings gap is attributable to differences in observed characteristics and how much is derived from differences in the returns to these characteristics.

5.1 The determinants of earnings in self-employment

5.1.1 Econometric framework

To probe the determinants of earnings in self-employment in South Africa I use Ordinary Least Squares (OLS) to estimate earnings regressions for the self-employed. I use data from the September round of the 2004 Labour Force Survey (LFS) because the 2005 and 2006 LFSs do not contain information on access to credit, which I expect to be a significant determinant of earnings among the self-employed.

[24] I focus on the earnings differential between self-employed Blacks and Whites because these are the two major groups in the South African labour market.

The dependant variable is the log of real hourly earnings (W_i), the independent variables include a vector of observable individual, employment and household characteristics (X_i), and ε_i is the error term:

$$\ln(W_i) = \alpha + \beta X_i + \varepsilon_i \quad (3)$$

Regression I includes a pooled sample of the self-employed from all four main race groups. Regression II includes a pooled sample of self-employed Blacks and Whites. Regression III and IV include samples of self-employed Blacks and self-employed Whites, respectively.

In regression II, I estimated earnings for a pooled sample of Whites and Blacks and then conducted a Chow test to establish whether it is appropriate to restrict the coefficients for Whites and Blacks to being the same. The null hypothesis states that the restricted regression (i.e. regression II), which forces the coefficients to be the same for Blacks and Whites, explains wages just as well as the unrestricted one. The unrestricted regressions fit equations to self-employed Blacks and self-employed Whites separately and thus allow the coefficients to be different. The results of the Chow test suggest (F = 2.783 with a *p* value of less than 0.001) that the null hypothesis can be rejected and thus the samples should not be pooled.

5.1.2 Results

The results of the OLS estimations of the earnings equations for the self-employed are reported in Table 10. The omitted categories in each of the regressions are for non-married, Black females, with less than a completed primary education, working on their own-account, as domestic workers in the informal sector in the Western Cape. However, the omitted category for race does not apply in regressions III and IV.

As expected, the results of the coefficients for the quadratic in age suggest that earnings increase non-linearly with age and are thus consistent with human capital theory (Mincer, 1962; 1970; 1974). The age variables are statistically significant at the one percent level for both the pooled self-employed samples as well as the Black self-employed sample but they are not statistically significant for the White self-employed sample.

The results reveal that higher levels of educational attainment are associated with higher levels of hourly earnings among the self-employed in South Africa. For the national sample (regression I), an individual who has incomplete secondary education earns 24 percent (= exp (0.216) – 1)*100) more on average than an otherwise identical individual with less than a complete primary education. A self-employed individual with a complete secondary education (i.e. matriculation) or a complete tertiary qualification on average earns 66 and 116 percent more than the base category, respectively. However, the coefficient for the variable controlling for a complete primary education is not statistically significant and thus returns to a complete primary education are not significantly different from returns to primary, or no, education.

Regression III and IV show that average returns to education for self-employed Whites are higher than they are for self-employed Blacks. Regression III shows that a Black individual who has a complete secondary education (i.e. matriculation) earns 58 percent more on average than an otherwise identical individual with less than a completed primary education. Conversely, regression IV shows that a White individual who has a complete secondary education earns 127 percent more on average than the base category. The same pattern is evident with an incomplete secondary education and a complete tertiary qualification. However, the coefficient for the variable complete primary education is statistically significant in regression IV and suggests that self-employed Whites with a complete primary education have 66 percent lower returns than the base category, *ceteris paribus*. This result does not appear reliable since the

sample size for self-employed Whites with an incomplete primary education[25] or a complete primary education[26]is tiny[27].

Even after controlling for educational attainment the ability to both read and write in any language still translates into eleven percent higher average hourly earnings for the self-employed, *ceteris paribus*. Despite the coefficient for the literacy variable being statistically significant in the regressions for both the pooled samples (i.e. regressions I and II), it is neither statistically significant for the Black self-employed sample nor the White self-employed sample.

As expected the estimations reveal an earnings premium for self-employed men, with self-employed men earning 28 percent more than self-employed women, *ceteris paribus*. By controlling for human capital, sector of employment and type of occupation the result suggests that the earnings advantage for self-employed men holds across all forms of the market. However, this earnings premium for men is higher for self-employed Whites than it is for self-employed Blacks. The statistically significant results indicate that self-employed White males earn 38 percent more than self-employed White females whilst self-employed Black males earn 26 percent more than self-employed Black females, *ceteris paribus*.

The dummy variables that control for marital status reveal a marital earnings premium in both the pooled samples. This marital earnings premium is being driven by average returns to self-employed Blacks who are generating 34 percent higher earnings than their non-married counterparts, *ceteris paribus*. There is no evidence of a significant marital earnings premium among Whites in self-employment. However, in both the national and the individual samples, individuals who were previously married (and are now either widowed or divorced) earn significantly more than the self-employed who are not married. The results indicate also that

[25] Four individuals from the self-employed White sample have an incomplete primary education.
[26] One individual from the self-employed White sample has a complete primary education.
[27] In finding a similar result, Rospabé (2002) suggests that the negative returns to primary schooling may be the result of the very low number of Whites with a complete primary education and thus the result does not appear reliable.

there is no earnings premium to co-habitation, in neither of the individual samples nor the Black and White pooled sample (these findings are all broadly consistent with those reported in Casale and Posel (2007)). However, regression I suggests an earnings premium to cohabitation of 11 percent for the national sample of the self-employed.

The regressions also control for household composition and the location of the household. Household composition is captured with two variables, one representing the number of children less than seven years of age in the household and the other, the number of children who are seven to fourteen years of age in the household. The estimated coefficients across all four regressions suggest that the number of children in a household does not affect the earnings of the self-employed, *ceteris paribus*. However, where the individual lives is significant: the self-employed residing within a metropolitan area earn 31 percent more than the self-employed residing outside a metropolitan area, *ceteris paribus*. This earnings difference is considerably larger for self-employed Whites (65 percent) than it is for self-employed Blacks (29 percent).

Estimates for the sector of employment dummy are consistent with predictions of dual labour market theories (Fields, 2005; Heintz & Posel, 2008). In the national sample, the self-employed in the formal sector earn 52 percent more than the self-employed in the informal sector, *ceteris paribus*. However, the earnings premium to self-employment in the formal sector is greater for self-employed Blacks (53 percent) than it is for self-employed Whites (32 percent). This suggests that movement from self-employment in the informal sector to self-employment in the formal sector results in a much higher earnings jump for self-employed Blacks than for self-employed Whites, *ceteris paribus*. However, it is possible that sector of employment is itself endogenous to earnings – as earnings increase, the self-employed may "move" their business into the formal sector, for example by registering their businesses for tax purposes.

Table 10: Estimating the Black/White earnings differential for the self-employed, 2004

	I Pooled sample	II Blacks & Whites	III Blacks	IV Whites
Age	0.037***	0.039***	0.042***	0.038
	(0.010)	(0.011)	(0.013)	(0.026)
Age^2	-0.375***	-0.399***	-0.442***	-0.366
	(0.123)	(0.126)	(0.159)	(0.304)
Complete primary education	0.022	0.003	-0.037	-0.504*
	(0.075)	(0.077)	(0.089)	(0.275)
Incomplete secondary education	0.216***	0.208***	0.210***	0.441***
	(0.055)	(0.056)	(0.061)	(0.216)
Matriculation	0.509***	0.519***	0.455***	0.820***
	(0.069)	(0.073)	(0.089)	(0.176)
Diploma/degree	0.772***	0.774***	0.675***	1.089***
	(0.081)	(0.083)	(0.126)	(0.178))
Literate	0.107*	0.109*	0.100	0.130
	(0.062)	(0.062)	(0.067)	(0.172)
Male	0.243***	0.252***	0.233***	0.319***
	(0.039)	(0.040)	(0.045)	(0.094)
Coloured	0.301***			
	(0.076)			
Indian	0.394***			
	(0.129)			
White	0.657***	0.660***		
	(0.078)	(0.082)		
Married	0.273***	0.260***	0.289***	0.135
	(0.051)	(0.053)	(0.062)	(0.120)
Cohabit	0.105*	0.085	0.080	0.187
	(0.062)	(0.064)	(0.070)	(0.186)
Previously married (divorced or separated)	0.215***	0.217***	0.189**	0.286*
	(0.069)	(0.072)	(0.088)	(0.159)
Children under 7 years of age	0.013	0.017	0.021	-0.013
	(0.020)	(0.021)	(0.024)	(0.051)
Children from 7 to 14 years of age	0.001	0.003	-0.002	0.068
	(0.017)	(0.017)	(0.020)	(0.047)
Formal sector employment	0.443***	0.431***	0.424***	0.275***
	(0.068)	(0.075)	(0.091)	(0.121)
Not own account self-employment	0.186***	0.181***	0.212***	0.107
	(0.045)	(0.047)	(0.055)	(0.092)
Access to formal credit	0.141*	0.137*	-0.076	0.234***
	(0.075)	(0.081)	(0.151)	(0.076)
Access to informal credit	-0.146***	-0.134***	-0.119**	-0.645***
	(0.050)	(0.050)	(0.057)	(0.153)
Living in a metropolitan area	0.267***	0.288***	0.252***	0.498***
	(0.062)	(0.069)	(0.091)	(0.091)
Constant	0.192	0.085	0.578	0.383
	(0.267)	(0.279)	(0.409)	(0.594)
Number of observations	4390	4067	3321	746
R^2	0.6397	0.6372	0.3583	0.3840
Chow test			F=2.783;Prob.=0.001	Reject H_0

Oaxaca-Blinder decomposition	
Total (unadjusted) differential	**237.7**
Endowments	**120.8**
Coefficients	**116.9**
Constant	**-19.5**
Adjusted differential	**97.4**

Source: LFS 2004:2

Notes: 1. Standard errors in parentheses. 2. The data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Dependant variable is the log of hourly earnings with imputed values (imputed values are for missing and zero reported earnings). Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa. 4. The estimates are for self-employed individuals aged 15 to 65 years, who reported non-zero working hours of less than 113 hours a week. 5. Regression I includes a pooled sample of self-employed individuals across all race groups. Regression II includes a pooled sample of self-employed Blacks and self-employed Whites. Regressions III and IV include samples of self-employed Blacks and self-employed Whites, respectively. 6. The omitted categories are for non-married, Black females, with less than completed primary education, working as a domestic worker in the informal sector in the Western Cape. 7. The regressions also control for province of residence and 9 occupation dummies which are not reported here. 8. Regression II contains the restricted sample and regressions III and IV are the unrestricted samples in the Chow test. 9. ***significant at 1% level; **significant at 5% level; *significant at 10% level. Note that in the decomposition analysis, the negative sign indicates an advantage to self-employed Blacks.

The results from regressions I and II also suggest that a self-employed individual that employs others generates, on average higher earnings than an individual that works on his own account. This premium to the self-employed who employ others is driven by the returns to self-employed Blacks who are earning 24 percent more than self-employed Blacks who work on their own account. However, self-employed Whites who employ others do not generate significantly different earnings from self-employed Whites who work on their own account. This may reflect a larger proportion of self-employed professionals among Whites.

It is evident that access to formal credit is significantly associated with higher returns to self-employment, *ceteris paribus*. Self-employed Whites who have access to formal credit generate 26 percent higher returns, *ceteris paribus*. However, the access to formal credit variable is not statistically significant for self-employed Blacks and this may be a result of a very small number of self-employed Blacks having access to formal credit[28].

The estimated coefficient for the access to informal credit variable reveals a negative relationship with the earnings of the self-employed. The estimated coefficients are statistically significant across all four regressions with self-employed Whites who have access to informal credit generating 47 percent lower earnings. This negative relationship may be a result of access to informal credit being endogenous to self-employment earnings: the self-employed who are not "successful" may be more likely to need credit but they may also be less likely to have access to formal credit.

All the regressions also control for occupation as well as province of residence (although the results are not reported in Table 10). Regressions I and II also include race dummy variables, with Black as the omitted category. The results show that even after controlling for a wide range of observable characteristics, a racial hierarchy in earnings is still present. The estimates for the race dummy coefficients reveal that relative to self-employed Blacks, self-employed Coloureds,

[28] Only three percent of the self-employed Black sample has access to formal credit.

self-employed Indians and self-employed Whites generate 35, 48 and 93 percent higher returns to self-employment, respectively.

Importantly, the results from regression II reveal that after controlling for observable characteristics a significant earnings differential exists among self-employed Blacks and Whites. Assuming that race only has an intercept effect on earnings then the size of this differential is 93 percent. In the next section, I estimate the size of the racial gap in earnings allowing also for shift effects, by decomposing this gap into endowments and returns to endowments.

5.2 The decomposition of the Black-White earnings differential among the self-employed

5.2.1 Framework

For the decomposition analysis, I estimate regressions III and IV which allow the returns to characteristics to vary between the Black and White samples of self-employed. I then decompose the Black/White earnings differential, using the standard Oaxaca-Blinder decomposition technique.

5.2.2 Results

The unadjusted earnings differential is large and positive and implies a "raw" earnings premium to self-employed Whites of approximately 238 percent. Part of the "raw" earnings premium for self-employed Whites is a result of self-employed Whites having an advantage over self-employed Blacks in terms of endowments. Self-employed Whites have an advantage in

endowments with respect to age, educational attainment, being male, married, operating in the formal sector, operating an activity that employs other workers, having access to formal credit and living in a metropolitan area.

Part of the "raw" earnings premium in favour of self-employed Whites is also explained by self-employed Whites having an advantage in terms of returns to endowments (i.e. coefficient component of decomposition). Self-employed Blacks have higher returns to age, marriage, formal sector work and access to informal credit. However, this is overshadowed by self-employed Whites receiving larger returns to different occupations, different locations (as indicated by provinces), residence in a metropolitan area, educational attainment, literacy, being male and access to formal credit.

Once I control for the fact that Whites are more educated, more likely to be working in the formal sector, more likely to be working in a metropolitan area and more likely to have access to formal credit, the size of the differential (now the adjusted differential) falls. The adjusted differential therefore represents what remains after accounting for differences in observable endowments. However, the earnings premium is still large with Whites earning, on average, 97 percent more than Blacks in self-employment after accounting for differences in observable characteristics. The source of the earnings gap (i.e. the adjusted differential) derives from the coefficients (i.e. returns to endowments).

Just over half of the earnings differential (55 percent) therefore, is explained by differences in observable characteristics. The remainder of the earnings differential (45 percent) is a result of differences in returns to these endowments. Differences in returns to endowments typically are interpreted as suggesting the presence of discrimination in self-employment. The type of discrimination among the self-employed does not come in the form of wage discrimination or

employment discrimination[29]. The regressions control for occupational status very broadly, and thus it is possible that discrimination affects access to jobs within occupational categories. Discrimination may also be a result of consumer discrimination where consumers deliberately choose not to do business with self-employed Blacks (Borjas & Bronars, 1989; Meyer, 1990; Boyd, 1991). The discriminatory behaviour may derive from the perception that a certain group, in this case self-employed Blacks, lack the relevant skills to provide the required quality of goods or service. Furthermore consumers who discriminate may experience a drop in utility if they do business with a certain group.

There might be further discrimination present in credit markets where certain groups may have less access to credit (Rospabé, 2002; Meyer, 1990). Although the estimations include binary variables controlling for access to credit, it is likely that they do not adequately capture differences in access and the terms of this access. Lending institutions may perceive self-employed Blacks to be less productive, less able to generate profitable returns, or less able to meet their credit obligations, as opposed to self-employed Whites and thus they do not offer them credit on comparable terms. There may also be discrimination in terms of access to output or input markets. For instance, incumbents in a market may discriminate against Black entrants in terms of anti-competitive behaviour such as predatory pricing. Furthermore, suppliers may discriminate against self-employed Blacks with use of discriminatory pricing practices such as charging them with higher prices or not offering them similar discounts to the discounts they offer to self-employed Whites.

However, it must be noted that statistically the discrimination component is essentially a residual and for only discrimination to be reflected in the residual, then the model needs to be well specified. If there are any omitted variables such as unmeasured labour market skills, attitude toward risk, and business acumen which positively affect earnings, then the discrimination component will be overstated. Another omitted variable that I am not able to control for, are

[29] Wage discrimination, a common source of discrimination in labour markets, is not relevant here because the study considers only the self-employed.

differences in social capital (or relationships of trust and reciprocity) between the two self-employed groups. Furthermore, unmeasured factors that influence the selection into self-employment may also influence the returns to self-employment and thus again the discrimination component may be overstated. However, this is only if there is stronger positive selection among Whites than among Blacks. If there is stronger selection into self-employment among Blacks than there is among Whites, then the discrimination component will be underestimated.

5.3 Conclusion

The results suggest that greater educational attainment, being male, self-employed in the formal sector of the economy, residing in a metropolitan area and access to formal credit explain a significant part of the White earnings premium in self-employment. This is reflected by 55 percent of the raw earnings differential being explained by observed characteristics. The remaining 45 percent of the raw earnings differential is explained by what the Oaxaca-Blinder decomposition would term discrimination. Discrimination may very well be explaining part of this earnings differential with the possible presence of consumer discrimination, as well as discrimination in access to other markets such as credit markets, input markets or product markets. However, it is possible that because of omitted variables and selection bias, the magnitude of discrimination is overstated (provided there is stronger positive selection into self-employment for Whites as opposed to Blacks) in the OLS estimations.

Chapter Six: Conclusions and recommendations

This dissertation has investigated self-employment in South Africa. The main research question of the study was what accounts for the earnings differences among the self-employed in South Africa. The primary objective was to probe the determinants of earnings in self-employment, and interrogate the large earnings gap in self-employment among Blacks and Whites in South Africa. The study then examined how much of this gap is attributable to differences in characteristics of the self-employed, and how much derives from differences in the returns to these characteristics.

Using Labour Force Survey (LFS) data, the study explored changes in the extent and composition of the self-employed and their real earnings (Chapter Four). In Chapter Four, I also used one of the LFSs (the LFS 2004:2) to describe the average characteristics of the self-employed, the distribution of the self-employed across occupation type and industry, as well as the distribution of earnings of the self-employed. In Chapter Five, earnings differences among the self-employed were investigated econometrically.

6.1 Main findings

In 2006, self-employment represents approximately one-fifth (19.6 percent) of total employment in the South African economy and this has remained relatively constant over the period 2000 to 2006. Despite growing unemployment over the period, total self-employment in South Africa has not grown but has fallen slightly. However, after disaggregating self-employment into formal and informal sector self-employment, the results show that there has been growth in formal sector self-employment which has been offset by the decline in informal sector self-employment. The decline in informal self-employment in agriculture, in particular, was

primarily responsible for the overall fall in the absolute number of self-employed over the period.

The results also showed the skewed composition of the self-employed by race. Not only are Whites disproportionally represented in formal sector self-employment but the growth in formal sector self- employment over the period has been driven by increases among Whites. Similarly, the results indicate that Blacks are disproportionally represented in informal sector self-employment and that the job losses in informal self-employment have occurred primarily among Blacks.

Average hourly earnings of the self-employed have increased over the period and this is consistent across both sectors of the economy with most of the earnings growth occurring in formal sector self-employment. As with previous studies that focus on the earnings of all the employed across race groups in South Africa (Hinks, 1999; Allanson, Atkins & Hinks, 2000; Mwabu & Schultz, 2000; Erichsen & Wakeford, 2001; Rospabé, 2002), I also identify a racial hierarchy in earnings among the self-employed specifically, with Whites earning the most and Blacks earning the least. The results suggest clear divisions between formal and informal sector self-employment, where average earnings are considerably higher in formal sector self-employment. With Whites being over-represented in formal sector self-employment and with the growth in formal sector self-employment being driven by increases among Whites, the racial hierarchy in earnings therefore has not been eroded over the period.

Cross-sectional descriptive analysis in Chapter Four showed that there are a number of differences in the observable characteristics of the self-employed by racial group. Self-employed Whites are, on average, older and more educated. They are more likely to be married, male, and working in the formal sector of the economy in a skills-intensive occupation with access to formal credit. These characteristics are typically associated with higher returns and success in self-employment. Furthermore, the results also indicate that self-employed Whites are

distributed in activities that generate greater returns to self-employment. The distribution of self-employed Whites is more concentrated in formal sector non-agricultural activities which are not own account employment, and particularly in skills-intensive legislative/managerial, professional and associate professional occupations.

In contrast, self-employed Blacks, on average, are younger and have considerably lower levels of educational attainment than others in self-employment. They are also less likely to be married, male and to live in a metropolitan area. They are more likely to work in an unskilled occupation in the informal sector of the economy and to access only informal credit. These characteristics are typically associated with lower returns to self-employment. In addition, self-employed Blacks are distributed across activities associated with lower returns to self-employment. For instance, self-employed Blacks are concentrated particularly in non-agricultural own account self-employment in the informal sector and across semi-skilled and unskilled occupations.

In Chapter Four the descriptive statistics identified the presence of substantial average earnings differences in self-employment between Blacks and Whites in South Africa. The measures of earnings inequality in Chapter Four also describe not only the level of earnings inequality among the self-employed but also the level of inequality between self-employed Blacks and Whites. In Chapter Five, I investigated this earnings differential among the self-employed with the use of multivariate econometric techniques. The first step in the econometric analysis was to probe the determinants of earnings among the self-employed by estimating earnings equations. The estimated coefficients in these earnings regression show that educational attainment is a significant determinant of earnings among the self-employed: higher levels of educational attainment are associated with significantly higher returns to self-employment. Self-employed Whites generate higher returns to self-employment than Blacks for equivalent levels of educational attainment. These results are consistent with the findings of other studies in the South African labour market literature (Bhorat, 2000; Mwabu & Schultz, 2000; Rospabé, 2002; Heintz & Posel, 2008).

The estimates reveal a premium to formal sector self-employment over informal sector self-employment and are thus consistent with predictions of dual labour market theories (Fields, 2005). The gender dummy variable reveals the presence of a male earnings premium that is greater for White males than for Black males in self-employment. The earnings of the self-employed are also positively determined by age and residence in a metropolitan area. The results of the marital status dummies reveal that earnings are positively associated with being married (not statistically significant for self-employed Whites) or previously married and that there is no earnings premium to cohabitation (these results are broadly consistent with the findings by Casale & Posel, 2007). Furthermore, earnings are positively correlated with access to formal credit and this is especially evident among self-employed Whites.

I then explored the earnings differential between Blacks and Whites in self-employment using the Oaxaca-Blinder decomposition technique. I decomposed the earnings gap to determine how much is attributable to differences in the endowments (i.e. observable characteristics) of the self-employed, and how much derives from differences in the returns to these endowments.

The large positive unadjusted earnings differential implies a "raw" earnings premium in favour of self-employed Whites of approximately 238 percent. The advantage that self-employed Whites have over self-employed Blacks in terms of observable endowments such as educational attainment, formal sector employment in a metropolitan area and access to formal credit, is responsible for approximately 55 percent of the "raw" earnings premium. After controlling for the differences in observed endowments between the two groups of self-employed, it is evident that Whites earn, on average, approximately 97 percent more than Blacks in self-employment. The source of this adjusted earnings differential in favour of Whites, derives from differences in returns to observable endowments (i.e. coefficients). Whites have far larger returns to educational attainment, formal credit and residence in a metropolitan area than Blacks in self-employment. Differences in returns to observable endowments account for approximately 45 percent of the "raw" earnings premium.

It is possible that discrimination may be responsible for these differences in the returns to observable endowments. Discrimination may take the form of consumer discrimination or discrimination in access to certain markets such as the credit and input markets. However, it is also possible that the residual earnings gap reflects the effects of omitted variables, such as unobserved characteristics, in the analysis. For example, the earnings of a self-employed individual may be affected by that individuals' business acumen, attitude toward risk, or other unmeasured labour market skills. Differing levels of social capital (or relationships of trust and reciprocity) among the self-employed may also determine their earnings but such information is hard to measure and is therefore omitted. As a result it must be recognised that omitted variables may bias the results of the analysis.

Individuals who are self-employed may also not be a random sample of the employed, and the self-employed may be different in unobservable ways to the employed. Given the complex nature of selection in South Africa, I do not control for selection bias in my estimations. Therefore it seems unlikely that selection would account for why Whites in self-employment earn almost double what Blacks earn, even after controlling for differences in unobservable characteristics.

6.2 Recommendations and policy considerations

This study does not investigate explicitly why self-employment in South Africa remains so low in the face of very high rates of unemployment. The focus, rather, is on the returns to self-employment and a consideration of why average returns to self-employment among Blacks remain so much lower than among Whites. However, it must be noted that the presence of low returns to self-employment could be a factor helping to explain why self-employment is not growing more rapidly, particularly if self-employment is riskier or generates less secure income than wage employment. This suggestion warrants further investigation in a study of "reservation earnings" in South Africa.

The results from the study point toward the importance of educational attainment in the determination of the earnings among the self-employed: higher levels of educational attainment are closely correlated with higher returns to self-employment. Further research that looks more closely at the relationship between educational attainment and returns to self-employment may shed light onto the levels and types of education necessary for success in self-employment. For example, researchers can take a closer examination of the role of technical training and skills development in the growth of self-employment and the success of the self-employed. This research may aid the formulation of policy aimed at encouraging more successful self-employment.

On a similar note, the results also suggested the importance of access to credit in the determination of earnings among the self-employed. Access to formal credit affected the earnings of the self-employed favourably and thus policies aimed at providing or making funds available (i.e. credit) to entrepreneurs may assist in the successful growth of their ventures. Further study into the role of credit in the success of the self-employed may assist policy formulation.

Finally, the nature of discrimination in self-employment warrants further focused study. Affirmative action policies are able to tackle discrimination among the wage employed but it is more limited in its reach to the self-employed. Tackling consumer discrimination or discrimination in markets such as the credit market is not as easy to address and thus further investigation is necessary for the formulation of policies that can counter such problems.

6.3 Concluding remarks

In the context of the high levels of unemployment and poverty present in South Africa more research into entry barriers into self-employment, the skills necessary to succeed in self-employment, the ability to access credit and any other hindrances to the growth and success of the self-employed is vital. The growth of self-employment may play an important role in reducing unemployment and thus income inequality and poverty. Self-employment is an important source of gainful employment in the economy and therefore policies aimed at encouraging and assisting the self-employed are central to the welfare of those concerned. Therefore policies aimed at removing obstacles that prevent individuals from taking advantage of economic opportunities should be encouraged.

It is clear from this study that a large earnings gap is present among Blacks and Whites in self-employment in South Africa. Just over half of this earnings differential is attributable to differences in endowments. The remainder of this earnings gap may reflect the effects of omitted characteristics such as attitude to risk and entrepreneurial ability, or it may reflect differences in the returns to observed characteristics. Differences in returns to observed characteristics may be the result of discrimination among the self-employed, including consumer discrimination and discrimination in access to credit or product markets. Discrimination in self-employment is a possible impediment to success in self-employment and thus future research into the nature and extent of discrimination in South Africa is necessary.

Appendix

Table A1: Average real earnings (2000 prices) after imputing for zero and missing values, 2000-2006

	2000		2002		2004		2006	
	Employee	**Self-employed**	**Employee**	**Self-employed**	**Employee**	**Self-employed**	**Employee**	**Self-employed**
Percent of zero reported earnings	1.53	31.18	1.17	17.06	0.95	12.02	0.72	14.72
Hours worked per week by those with zero reported earnings	40.62 (2.05)	20,48 (0.43)	38.71 (1.77)	24.25 (0.76)	44.48 (2.01)	22.31 (1.22)	42.63 (2.29)	19.51 (0.81)
Percent of missing reported earnings	3.62	4.44	7.51	9.02	9.45	10.45	6.47	8.77
Hours worked per week by those with missing reported earnings	45.34 (0.69)	45.53 (1.47)	45.73 (0.37)	48.58 (1.05)	43.65 (0.40)	47.74 (1.05)	44.08 (0.50)	46.46 (1.62)
Average real hourly earnings (zero reported earnings included)	14.48 (0.31)	10.95 (0.56)	13.81 (0.44)	14.60 (2.54)	14.15 (0.39)	13.49 (0.86)	15.74 (0.75)	13.90 (1.27)
	Imputed earnings							
Average imputed real hourly earnings for zero reported earnings	5.69 (0.53)	2.37 (0.06)	4.06 (0.37)	2.31 (0.21)	5.39 (0.68)	2.39 (0.07)	5.48 (0.64)	2.65 (0.07)
Average imputed real hourly earnings for missing reported earnings	15.73 (0.96)	18.71 (1.86)	19.04 (0.60)	22.79 (1.16)	22.37 (1.07)	30.97 (2.90)	19.30 (1.07)	30.92 (4.96)
Overall average real hourly earnings (imputed values included)	14.61 (0.30)	12.03 (0.54)	14.25 (0.41)	15.73 (2.31)	14.98 (0.41)	15.60 (0.96)	16.01 (0.74)	15.79 (1.30)
Average weekly hours worked	46.26 (0.14)	38.55 (0.40)	46.57 (0.11)	43.88 (0.43)	45.02 (0.15)	43.74 (0.55)	44.80 (0.14)	42.18 (0.69)
Average real monthly earnings	2730.47 (57.01)	2169.54 (106.91)	2695.22 (71.17)	2603.73 (106.40)	2808.11 (80.78)	2939.76 (186.91)	2939.86 (133.45)	2871.55 (243.70)

Source: Labour Force Surveys (LFS) 2000:2; 2002:2; 2004:2; 2006:2

Notes: 1. Standard errors in parentheses. 2. Data are weighted (using the new weights released by Statistics South Africa in 2006). 3. Estimates are for all employed individuals aged 15 to 65 years who reported non-zero working hours of no more than 112 hours per week. 4. Earnings were deflated using the Consumer Price Index for 2000, published by Statistics South Africa.

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19 JUNE 2008

MR. FK STEENKAMP (202514203)
ECONOMICS

Dear Mr. Steenkamp

ETHICAL CLEARANCE APPROVAL NUMBER: HSS/0175/08M

I wish to confirm that ethical clearance has been approved for the following project:

"Explaining differences in the earnings of the self-employed. A South African household study"

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years

Yours faithfully

Ximba
.....
MS. PHUMELELE XIMBA

cc. Supervisor (Prof. D Possel)
cc. Ms. J Mazibuko